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PUBLIC HEALTH PLANNING IN THE U.S.S.R.



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
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PUBLIC HEALTH PLANNING IN THE USSR

BY

A. P. ZHUK

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*Translations of Soviet documents

PREFACE

The Government of the United States is reviewing on a continuing basis the national health activities of other countries in order to better serve the escalating medical requirements of the American people. Important elements of all health activities, of course, include biomedical research, medical education, health manpower and health services. An analysis of these foreign health-related activities and programs may provide the U.S. Government health administrators with new insights in solving some of the complex problems relating to the improvement of health in the United States.

Recognizing the historical development of foreign medical systems, no single country or government may have the type of medical care or health system which will provide completely adequate health assistance desired by our citizens. A study of the best features of foreign health systems, however, ultimately may provide a better understanding of the perspective within which health exists in this country. Such a perspective, however, must include an improved comprehension of the political, economic, social, and other cultural aspects of society itself.

The Fogarty International Center of the National Institutes of Health, established in 1968, and named in memory of the late Congressman John E. Fogarty of Rhode Island, is an organization envisioned by Mr. Fogarty and called for in his address to the Third National Conference on World Health in September 1963, as "a great international center for research in biology and medicine dedicated to international cooperation and collaboration in the interest of the health of mankind."

With Senator Lister Hill of Alabama, Congressman Fogarty charted the growth of the National Institutes of Health and the nation's medical research and education for nearly two decades as Chairman of the House of Representatives' Appropriations Subcommittee on the Departments of Labor, and Health, Education and Welfare.

The many-faceted operations of the Fogarty Center have grown and flourished in collaboration with other American, foreign national and international bodies, and by means of bilateral agreements with the governments of several countries including France, Italy, Japan, and the U/S/S,R. The Center also has the effective and continuing cooperation of international organizations such as the World Health Organization and engages in less formal exchanges involving scientists and physicians from the United States and abroad. Similarly, toward the production of new and valuable medical findings, it shares its resources with other elements of the National Institutes of Health and with the U.S. Public Health Service.

In addition to serving as the communications pulse for scientific information emanating from abroad, the Center provides American and overseas scientists opportunities to deal with complex problems of vital concern in mankind's well-being. These opportunities and

services are inherent in the Center's International Education Program, in its International Fellowship Program and the Visiting Program. Also being implemented is the Center's International Research Exchange Program that enables American health professionals to study abroad.

Many and varied health-related topics have been investigated by the Center's Scholars-in-Residence Program, by a continuing program of conferences and seminars, and by its five-year-old, Geographic Health Studies. This last mentioned undertaking, a series of studies designed to obtain and disseminate comparative knowledge of the health-care systems of other countries, is this publication's raison d'etre.

Inquiries about this and other publications of the Geographic Health Studies Program, which are listed elsewhere in this book, should be directed to Dr. Joseph R. Quinn, Head, Geographic Health Studies.

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Director
Fogarty International Center

ANNOTATION

[Text] This book by A. P. Zhuk deals with theory, methodology and organization of public health planning in the USSR. Public health planning is viewed as an inseparable part of planning of the national economy. Theory of public health planning is a special discipline which is one of the sections of theory of national economy planning. Public health planning makes use of the following methods: analytical, balance, standards, method of correlations or proportions and experimental method. The public health plan is constructed according to a specific system of indices that may be established or calculated. Analysis is made of this system of indices, the correlation between them and of the methods of calculation. He discusses the public health indices in the summary sections of the national economic plan. Organization of public health planning provides for unity of the plan and it is based on a combination of centralized management of planning and initiative of local bodies. He furnishes a system of organizing work dealing with preparation of plans for development of public health, starting at the rayon level and going up to the overall Union bodies. There is a special chapter dealing with methods of analyzing demographic data, data pertaining to morbidity and statistical reports on public health for substantiation of the public health plan.

The most important problem in public health planning is to implement measures directed toward lowering morbidity and eradicating mass-scale infectious disease. Analysis is made of the present status of this problem with reference to several of the most important diseases (infectious diseases, particularly tuberculosis, helminthiasis, rheumatism, cardiovascular disease, cancer). The author discusses the methods of setting standards for providing the urban and rural population with medical care; he describes the history of development of these methods and submits specific standards of hospital and polyclinic care as related to different specialties, which have been approved by the USSR Ministry of Health and recommended by some authors.

There is discussion of the organizational aspects of constructing the public health networks in cities and rural areas, standard categories and structure of public health institutions, principles involved in locating the network in cities, oblasts and rayons. He describes the methods involved in planning model staff and staff standards for medical institutions. He discusses the methods of planning backup of public health institutions with physicians and paramedical personnel, and of creating a personnel balance [budget].

In the relevant chapters, the author submits the content of the most important decrees of the Party and government, as well as orders and methodological instructions of the USSR Ministry of Health dealing with public health planning.

This book is of definite interest to physicians--public health organizers, administrators of public health agencies and institutions, and workers involved in finance planning.

INTRODUCTION

[By Professor S. M. Danyushevskiy]

The building of socialism in the USSR and the transition to full development of the building of communism constitute a great feat of the Soviet people. This became possible because the grand task of developing and strengthening the socialist state was successfully fulfilled at all stages of the building of socialism under the guidance of the Communist Party of the Soviet Union, which was armed with Marxism-Leninism teachings concerning the patterns of social development. In the state plans the Communist Party and Soviet government correctly define development of all branches of the national economy and culture as the main problems involved in the building of socialism and communism, and are correctly defining the means of solving them.

This also applies entirely to the development and strengthening of socialist public health, since "... a socialist state is the only state that takes on the concern of protecting and constantly improving the health of the entire population" (1) and proclaims that "all for the sake of man for the good of man," while public health planning in the USSR is an organic component of planning of the economy.

By the time the Soviet government celebrated its 50th anniversary the country had enormous achievements in all facets of the building of a communist society, including in the field of public health protection and improvement. The latter was reached because public health care was created in the USSR in accordance with a plan based on Lenin's ideas regarding the planning of the national economy and culture.

In the USSR, public health planning has traveled a long and glorious route. Constantly improving, it has grown into a scientific discipline that is a branch of science dealing with economic planning.

As it succeeded in resolving the problems confronting it at different stages of the building of socialism, in accordance with specific historic conditions, Soviet public health aided in the building of socialism in the USSR, and at the present time it is actively involved in creating the material and technical base of communism.

However, it would be wrong to believe that there are no unsolved theoretical and practical problems in the area of public health planning.

These ensue primarily from the inherent complexity of the subject, which must be dealt with scientifically, particularly long-term planning.

Indeed, how is one to substantiate scientifically the health status of the republic (urban and rural population, adults and

children, males and females) in about 10 or 20 years? And in this connection, what specialized types of medical care will the public require and what should be the scope of such care, with due consideration of the development of medical science, assimilation of the latest technology and progressive forms of medical care? The proper and scientifically substantiated solution to these problems is mandatory not only to determine the network of medical institutions, but also to answer the question as to the number of workers that must be drawn upon from the overall manpower resources of the country. It is necessary to substantiate scientifically the country's requirements with regard to physicians, paramedical personnel, pharmaceutical personnel, technical and laboratory workers. Finally, one must provide for financing of expenses for health care and capital construction, coordinating these expenses with the overall national economic plan.

In spite of the complexity of the problems that the scientists dealing with public health planning must resolve, it should be noted that thus far in essence such problems have been resolved rather well.

Under socialism, the application of the laws of economics to public health (and first of all, the law of planned and proportional development) is feasible only with a plan that is a tool of deliberate regulation of all issues related to protecting and improving public health. But it is not any plan that is capable of serving this purpose; needed is a plan that is scientifically substantiated, a plan that is based on all of the conclusions of medical science and progressive practice that correctly reflects the requirements with regard to development of the public health service.

Let us consider, for example, the statement that our plans are directive plans rather than forecast plans. Perhaps making such a distinction was justified during the period of transition from capitalism to socialism, but it is not justified at the present time. The intensive growth of socialist public health complicated exceedingly the tasks of planned development thereof. Under these conditions, the role and importance [responsibility] of scientific forecasting increases enormously. Life demands better scientific methods of public health management and planning. The role of scientific forecasting grows enormously. Only scientific forecasting puts planning on a firm and objective foundation. After a plan has been developed and approved, it becomes a mandatory directive and gains the strength of a law. "The essence of socialist planning is not determined by setting directives against forecasts, rather by synthesis and unity thereof" (L. Leont'yev).

Concern about improving the welfare of the public and raising the cultural standards of working people, consistent with the principal economic law of socialism, determines the policies and practices of the Communist Party and Soviet government in organizing industry and distributing material goods, in the field of finances, marketing and trade, labor and wages, in the housing question, and in questions of culture and public health.

The Communist Party, armed with Marxist-Leninist theory, scientifically determines the economic policies designed to build socialism and communism. V. I. Lenin indicated, as we know, that "... politics is the concentrated expression of economics... Politics cannot have priority over economics." This means, V. I. Lenin stated, that "... without a proper political approach to the matter, this class will not retain its supremacy and consequently it cannot resolve its production problems" (2). By properly defining policy, the Communist Party outlines the next tasks involved in economic construction and specifies them in the economic plans.

In addition to determination of answers to a number of theoretical questions having a direct bearing on public health planning, there must be further improvement in the methods and methodology of forecasting morbidity; in determining the requirements of the public with regard to the different types of medical care; the labor required of medical personnel and optimum work load standards (and hence staff standards) as well as the creation of models of health care in cities, rayons, and rural areas. In public health planning, inadequate use currently is being made of the methods of expert evaluation and of mathematical methods, and the economic substantiation of plans. Without the use of these a plan cannot be considered scientifically substantiated.

Like any science, the science dealing with public health planning, as a part of national planning, does not stand in one place; rather, it undergoes constant improvement and development and, like all socialist planning, it is creative. "After the socialist revolution one must proceed from new economics and political conditions evaluating as much as possible the change in all branches of the economy that should be the inevitable consequence of the victory of the working people" (3).

Under the leadership of the Communist Party, the Soviet people have transformed the ideas of scientific socialism into reality; they have created a planned system of economics that provides complete freedom for the continuous progress of economics and culture for the good of the working people. Thus, for the first time, through deeds, the validity of the patterns discovered by Marxism and Leninism has been proved with regard to the change from capitalism to socialism and creation of a planned economy. Planned and proportional development of the national economy is an economic law of socialism.

The entire history of economic and cultural growth in the USSR constitutes a vivid manuscript of the laborious heroism of millions and millions of people. Socialism built in the USSR and undergoing successful building in other socialist countries has demonstrated its viability and superiority to capitalism. Only a socialist-planned economic system provides unlimited space for progressive development of mankind, continuous growth of national [social] production and of welfare and culture of the public.

There are enormous and well-known achievements as well in socialist public health, which is developing at a rapid pace on the basis of a firm planned system of management of the entire matter of public health protection.

In order to gain a more complete idea about the greatness of the achievements in this field in the years of Soviet power, we should recall, at least briefly, the state of public health in prerevolutionary Russia and how it was "planned" by the tsarist government and what it became today; and on this basis, we can evaluate the achievements gained by the time of the 50th anniversary of the Soviet government in the field of protecting and strengthening public health.

We shall discuss in a brief essay the main stages of development of public health planning in the 50 years of Soviet power, paying special attention to the early period when, under the guidance of V. I. Lenin, the basic ideas, principles and tasks of socialist planning of the economy were formed.

* * * * *

Of course, there is nothing to say about public health planning in prerevolutionary Russia. True, there were standards referable to hospital bed provisions for industrial workers approved as far back as the 1860's; however, these standards were usually not observed by the factory and plant owners. The interagency commission that was created in the last years of the monarchy dealing with revision of medical and sanitary legislation, chaired by Academician G. Ye. Reyn, recommended the standards of hospital care for the urban population (5, 12 beds per 1,000 population). We read with great interest and respect the works of zemstvo physicians (Ye. A. Osipov, P. I. Kurkin, V. S. Lebedev, Z. G. Frenkel'), who worked on problems of "normal" rural medical districts as related to population density and nature of economy. Z. P. Solov'yev praised this work: "... exceptionally creative work was done in Moscow Province which satisfied the demands existing at that time with regard to setting standards for a number of important positions which were the basis of medicine of the types then prevailing. And this work was not done solely by a system, expressly not by the system, because many physicians were involved in this creative work who were specialists, in today's terminology" (4).

These materials served as the initial data for further development of standards of medical care in planning Soviet public health in the 1920's, particularly in rural areas.

Nevertheless, there could be no question of public health planning under the tsarist regime and bourgeois system, with the scattering of medical care among different agencies and organizations, prevalence of private medical practice in the cities, bureaucratic management of the entire area of health care, the class-related nature of medical care and extremely low standards thereof under the conditions of political oppression and exploitation of the working masses.

The Great October Socialist Revolution, which resulted in the overthrow of the land owners and capitalists and established a

proletarian dictatorship, created a new social system the economic law of which was to have planned and proportional development of the national economy.

During the early years of Soviet power, public health planning in the USSR was limited to planning the main current measures, primarily in the area of controlling epidemics, as well as preparing annual budgets. The creation of unified Soviet medicine, the organization of people's commissariats of health in the RSFSR and other Union republics, as well as public health agencies in oblasts and autonomous republics, the nationalization of pharmacies and resorts, and strengthening of the financial base of public health created the prerequisite for planned development of public health in our country.

Even during this period, the first attempts were made to set certain standards for medical care and physicians. We know that in a note from V. I. Lenin to Z. P. Solov'yev on 1 November 1919, Lenin asked him about the number and standards of physicians in Moscow and Petersburg, and on 11 December 1919, by decree of the council of the workers and peasants defense, the people's commissariat of health was asked "to make a one-day census throughout the territory of the republic of all physicians, dentists, medical assistants and pharmacists for the purpose of keeping records and /better planning of distribution and use/ (emphasis by S. D.) of medical and pharmaceutical personnel." In the instructions pertaining to the edict of the RSFSR SNK [council of people's commissars] dated 11 July 1921, dealing with organization of sanitary and medical services in the mining and metallurgical industry, the "desirable" norms of organizing medical care for workers were indicated. On 15 September 1922, the following edict of RSFSR SNK was adopted: "sanitary bodies of the republic," which first set the standards with regard to health inspector [physician] positions. The first attempt to set standards in the area of medicine is referable to the first all-Russian conference of heads of medical subdepartments of the medical and sanitary departments of councils which convened on 15-20 December 1920.

In 1918, in his outstanding work entitled "The Next Tasks for the Soviet Power," and in several other works, V. I. Lenin outlined the plan of building the fundamentals of socialist economics. In 1920, the 9th Party Congress adopted a resolution, with reference to the report of V. I. Lenin, "The Next Tasks of Economic Construction," that "the main prerequisite for economic rebirth of the country is to consistently implement the single economic plan for the next historical era" (5).

The first long-term plan of the Soviet Republic, the GOELRO plan [State Commission for the Electrification of Russia], was approved in December 1920; and in February 1921, a state planning commission was created under the Council for Labor and Defense, and its main task was to work out a standard [single] national plan.

In the 1920's, while V. I. Lenin was still alive, long-term plans began to be developed for the development of Soviet public health.

The "Ten-Year General Plan of Development of the Sanitary and Preventive Service and Data for Preparing the Plan" is stored at the central state archives of the October Revolution and Socialist Building of the USSR. In fact, this was the first experience in preparing a plan for public health development in the Russian Federation. It covered a ten-year period (1926-1936) and work on the plan was completed in December 1925.

These materials, that have been little-known until now, are of great interest.

A specially created "planning commission of the RSFSR Narkoni-zdrav [People's Commissariat of Health]," chaired by Z. P. Solov'yev, dealt with public health plans starting in 1922. This commission conducted enormous preparatory work, gathering data from all areas pertaining to public health development in the provinces for the next 3 years, in some provinces for the next 5 years, and then for 10 years.

These data, together with the general 10-year plan for public health development, made up two volumes (about 700 typewritten pages). The authors of the plan gathered an enormous amount of material from different areas in 1923-1924, and only on the basis of such material did they tackle the preparation of the 10-year plan.

There were two tasks of paramount importance that served as the basis of the general plan: broad implementation of sanitary and preventive measures (at that time this term also referred to measures to control social diseases) and intensification of medical services for the rural population. The plan provided for medical supervision for the urban population on the basis of one physician per 25,000 population, and it also provided for development of specialization of sanitary supervision. In view of the absence of the necessary statistics, in particular of data pertaining to population size and structure, the main indices of the plan were given as percentage of satisfying the needs and only in some cases were they given in intensive indices. Thus, tuberculosis-control care was planned for the entire population of major industrial centers, oblast and province centers, whereas in other cities it applied to 40-60% of the population; psychiatric and neurological care was planned to satisfy about 50% of their requirements (one bed per 4,000 insured and 8,000 uninsured population); the plan provided for preventive walk-in centers for 30% of the children (one institution per 20,000 children); consultation centers were to meet 12% of the requirements; creches--25% of the normal requirement. The plan for servicing the rural population followed the line of developing a normal volost (rayon) organization by reorganizing the medical ambulatory districts into medical hospital district and eradicating the network of feldsher centers, replacing them with medical walk-in centers. Hospital bed availability for the rural population was planned at one bed per 1,000, or 50% of the requirement. The plan provided for measures to implement health inspection for the rural population, as well as to provide disinfection facilities, bacteriological laboratories, tuberculosis-control centers and venereological centers. It was planned to intensify special types of medical care for the rural population.

The leading role in the plan for the control of tuberculosis and venereal disease was assigned to tuberculosis-control and venereological dispensaries. It was planned to organize, in addition to the 207 existing tuberculosis dispensaries, another 190, and to bring up the number of beds for patients with tuberculosis to 22,000 in hospitals, sanatoriums and ancillary institutions at the dispensaries according to the minimum variant and up to 42,000 beds according to the maximum variant. The number of oblast and okrug venereological dispensaries should have reached 101 in 1936, according to the minimum variant and 230 according to the maximum one; according to the minimum variant there should be 436 rayon venereological centers and 1,121 according to the maximum variant.

Much space is devoted in the plan to the control of occupational diseases, steps dealing with municipal sanitation in cities, and the provision of utilities in rural areas.

The section of the plan dealing with questions of child and adolescent health care were developed with particular care. The number of pediatric preventive walk-in centers was planned to be increased to 200, instead of the existing 75, and the plan provided for 780 child health care centers. The plans provided for mass measures to improve the health of the growing generation, to provide dispensary supervision for some groups of children and adolescents, to increase the number of institutions for children with physical and mental handicaps, to implement measures pertaining to medical care of working adolescents, to deploy a network of medical supervision and occupational screening, and to train physicians in child health care.

The chief task in the plan for mother and infant care was to control infant mortality; the second one was to provide women workers with the opportunity of combining work and motherhood; the third task was to protect the health of women in general and of pregnant women in particular. Several other tasks were also outlined.

In the plan, the pediatric consultation center was the main institution involved in the control of infant mortality and in infant health care; the center was to implement supervision of all children up to 4 years old in accordance with the standards stipulated in the plan. According to the estimates of the authors of the plan for the Russian Federation for 1936, there should have been 16,450 consultation centers to provide complete services, including 4,100 for the urban population and 12,350 for the rural population. However, according to the plan, it was deemed realistic to bring the number of consultation centers up to 1,390 in urban areas by 1936, and to organize only 350 new consultation centers in rural areas.

The plan provided for bringing the number of creches in industry from 603 in 1926 to 1,413 in 1936, with 56,500 places available, estimating the creche requirement at 8,000 institutions. In rural areas it was planned to organize 9,000 new creches.

In order to provide for complete satisfaction of the consultation needs for pregnant women, the plan considered it mandatory to raise the number of such consultation centers to 870 in urban areas; however, it was considered realistic to deploy 329 consultation centers.

The document we have cited is the first experience in preparing a long-term plan for public health development covering all of its main branches and a rather long period of time. There was vivid reflection in this plan of the preventive objectives of Soviet medicine which were promoted to first place by public health administrators: development of the field of sanitation, mother and infant care, control of social diseases, preventive direction in the work in rural medical districts.

The plan provided the comprehensive characteristics of the direction and organizational forms of these areas of public health care. The content and direction of this plan were closely linked with the decisions of the 5th All-Russian Congress of Health Departments in 1924, the resolution of the 12th All-Russian Congress of Soviets which convened in May 1925 and dealt with public health questions, the papers delivered at the 1st All-Union Congress of District Physicians in December 1925, and the decree of the VTsIK [All-Russian Central Executive Committee] and RSFSR SNK dated 14 December 1925 pertaining to the bases for developing a standard volost (rayon) public health organization. All these congresses and decrees were very important to the development of long-term planning of Soviet public health.

At the same time, this general plan also reflected the extreme weakness of the statistical base, the lack of the most important statistical indices characterizing the level of availability to the urban and rural population of the most important forms of therapeutic and preventive care. There were no generalized indices of development of hospital and polyclinic care in the cities, nor did the plan define the requirements as to number of physicians and paramedical personnel.

The main flaws in the plan were that the rate of development of public health was slow and it was not integrated with the plan for development of the entire national economy. The authors of this plan, when determining the rate of development, resorted to the method of "extrapolation" which was subsequently condemned; it consisted of stabilizing the figures for network increment that had prevailed for the preceding period throughout the planned period. Along with estimates of requirements, the plan included minimum and maximum variants and so-called realistic indices that were offered by the authors for implementation. However, as we know, the rapid industrialization of the country and collectivization of agriculture during the first 5-year programs also made it necessary for public health to develop rapidly. The indices of public health development outlined in the first and second 5-year plans and the results of fulfilling these plans were considerably higher than the projections in the general plan with regard to several of the most important indices.

Unfortunately, it is not feasible to compare the indices of the general plan to the indices of the 5-year plans and results obtained with regard to development of the hospital bed and ambulatory polyclinic network as a whole, since these indices were absent from the general plan. However, if we proceed from the standard adopted at the 5th Congress of Health Departments, 6.6 beds per 1,000 urban population, we must conclude that it corresponded approximately to the index from 1937: about 6 beds per 1,000 urban population. However, the standards that were mentioned when preparing the 1st and 2nd 5-year programs were considerably higher.

The general plan had absolutely no provision for medical care in the form of health centers in industry; yet, the health centers were considered the "chief element" in the 1st 5-year program and their number in the Russian Federation reached 3,880 in 1932.

The projected development of the creche network was also sharply underestimated. According to the general plan, 56,500 vacancies in creches were to be available in 1936 for the children of industrial workers, yet in 1933, there were already 211,510 creche vacancies in different cities of the Soviet Union.

The authors of the general plan intended to fold up completely the network of feldsher centers and to reorganize them into district hospitals or medical walk-in centers. However, collectivization of agriculture made it imperative to bring medical care closer to the kolkhoz population, and this could be achieved essentially by developing the network of feldsher centers. The feldsher network did not diminish, and as if by chance coincidence, expressly in 1936 a decree was adopted by the USSR SNK "concerning the training of paramedical, dental and pharmaceutical personnel," which restored the training of feldshers and approved of a plan of enrolling 44,770 people in feldsher schools in the Soviet Union, in 1937.

These figures were also low in the plan with reference to the network of tuberculosis-control dispensaries and preventive children's centers.

With reference to some other items in the plan (health inspectors [physicians], bed resources in rural areas), the general plan correctly predicted [anticipated] the indices that prevailed over the 10-year period, whereas it quoted figures that were too high with regard to pediatric and women's consultation centers.

The document in question did not serve as the basis for the public health section in the long-term economic plan. In the 1920's, annual control figures were prepared for development of the national economy involving only indices of development of the most important branches of industry, and these control [check] figures were approved by the presidium of the USSR Gosplan. Only starting with the plan for 1927/28 did they begin to be approved by the government. In 1927, the 15th Party Congress approved the directives dealing with preparation of the 1st 5-year plan of development of the USSR economy. This plan was approved in 1929 by the 16th Party Conference. "The

1st 5-year plan was a program of full-fledged offensive of socialism over the entire front of the national economy. It was designed to build the foundation of socialist economics and to continue ejection of capitalistic elements from cities and villages for the purpose of total eradication thereof" (6).

In May 1927, at the 6th All-Russian Public Health Congress, Z. P. Solov'yev delivered a paper entitled "The Main Problems of Public Health Planning." In this interesting paper, Z. P. Solov'yev voiced several remarkable thoughts indicative of his profound understanding of the problems involved in public health planning and of the flaws that characterized it at that time. Some of the statements of Z. P. Solov'yev have not lost their meaning to this day. In his paper, he substantiated the great significance of long-term planning for development of Soviet medicine. He indicated that public health planning should be pursued in close association with the overall economic plan. "The business of public health, with regard to planning, is very closely wedged into the entire economy of our country.... Consequently, it is imperative for there to be the closest coordination of our plans with the overall plans for the national economy as a whole and for its different branches" (7). Z. P. Solov'yev stressed the fact that "there is the deepest link between public health and questions of organizing the national economy. Questions of interaction become of first and foremost significance to us" (8). He warns against a simplistic approach to the interpretation of the economy and he states that "this question should be put in the focus of our attention and it should be linked to questions of planning, and the most profound rationalization and improvement of our services to the public in the field of health care" (9).

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The decree of the central committee of VKP(b) [All-Union Communist Party (of bolsheviks)] dated 18 December 1929, "concerning medical care of workers and peasants," was the turning point in the development of Soviet public health and it radically alters the direction and nature of public health planning. This was a time when, in the expression of L. I. Brezhnev, in his report on behalf of the Central Committee CPSU to the 23rd Party Congress, "to reach the high rate of development of heavy industry we had to deliberately restrict our requirements" (10). Public health planning was to serve to implement the most important economic and political tasks of the first few 5-year programs: the production plans of industry and socialist reconstruction of agriculture. The course was set toward predominant servicing of industrial workers in the main branches of industry and the socialist sector of agriculture. There was vivid reflection of the class line in the public health plan, and for this purpose differentiated standards of medical care were established for different social groups. The geography of planning was important: special attention in the assignment of material resources, finances and medical personnel was devoted to the rapidly growing industrial regions of the Donets Basin, the Urals and the Kuznetsk Basin. Within a short time a broad network of health centers was deployed in industrial enterprises; there were institutions of a new type whose task was to improve working conditions and lower worker morbidity and thereby to aid in increasing the productivity of labor and fulfilling the output and finance plan. It was planned to create medical

teams in agriculture that would move to field camps from the rural medical districts and feldsher centers, organizing preventive and therapeutic care for kolkhoz and sovkhoz workers during the period of field work. At the same time, in view of the reinforcement of rural rayon centers, it was planned to create a network of rayon hospitals and walk-in centers that would render qualified medical care to the rural population.

The creche problem occupied one of the prominent places in the public health plan; it acquired major national economic significance. The rapid development of the creche network became a means of involving women in production. As in all other branches of the national economy, in accordance with the decision of the July plenary session of the Central Committee of VKP(b) in 1928 and the November plenary session of the Central Committee VKP(b) in 1929, as well as the special decisions dealing with medical personnel, the supply of medical personnel was considered of decisive significance in the public health plan. In the plan, the matter was comprehensively reflected as well with regard to accelerating training and determining the specialties of workers needed in socialist public health, strengthening the proletarian student core, and opening new medical VUZ and schools in industrial regions and national republics.

The 1930's marked a period of development of public health planning on an overall national scale. A public health sector of the USSR Gosplan was organized in April 1930, with M. I. Barsukov at its head. More and more there was awareness of the need to unify on the All-Union scale several of the public health sections and to intensify coordination, as well as to unify the methodological supervision of the work done by the Narkomzdravs of Union republics. In 1932, the All-Union Alliance of Resorts was organized--the Soyuzkurort [resort union] and the major resorts of the country and scientific research institutes dealing with resort matters were placed under its management. That same year, the USSR SNK issued a decree dealing with reorganization of the State Institute of Experimental Medicine, RSFSR Narkomzdrav, into the All-Union Institute of Experimental Medicine under the USSR SNK. The All-Union State Sanitary Inspectorate was organized under the USSR SNK in 1935.

At this time, the Soviet government made several important decisions pertaining to public health problems which were of great significance to public health planning. They include, first of all, decrees dealing with the control of malaria dated 20 May 1934, physician training dated 8 September 1934, and expansion of the network of maternity homes, creches and nurseries dated 27 June 1936.

All this prepared the way for creating the USSR Narkomzdrav. The USSR TsIK [Central Executive Committee] and SNK issued a decree on 20 July 1936 concerning the establishment of USSR People's Commissariat of Health, under which a planning department was organized.

There was a broad social aspect to development of the draft plan of public health development in the 2nd 5-year program. The first All-Union Conference on Public Health Planning and Workers'

Vacations convened in May 1932 at the Central Center of the Red Army; it was organized by the USSR Gosplan. Planning workers, public health organizers, medical specialists, scientists in different branches of medicine and allied fields, workers in the medical industry, as well as representatives of the field of physical culture, workers' vacations and tourism participated in this conference. The conference discussed a broad range of issues pertaining to long-term planning of development of public health, medical science and training of medical personnel, medical industry, vacations, physical culture and tourism. At this conference, differentiated standards were proposed for medical care of the urban and rural population. The main paper pertaining to the problems of public health development in the 2nd 5-year program was delivered by M. I. Barsukov, Head of the Public Health Sector of the USSR Gosplan.

During the years of the Great Patriotic War, public health planning did not cease; it became more operational and flexible. Public health planning was directed toward providing medical care for sick and wounded servicemen in the Soviet Army, and for defense workers, and toward providing good sanitary conditions in the rear of the country, as well as toward safeguarding the health of children. A large specialized network of evacuation hospitals was deployed; medical and sanitary units were organized at the defense plants. Of great importance to the sanitary welfare of the country and the prevention of potential outbreaks of epidemics was the fact that G. A. Miterov, USSR People's Commissar of Health, was assigned as a representative of the State Committee for Defense, and his orders and instructions dealing with sanitation and epidemic control were mandatory for all agencies and, in particular, for the railroad service. The planned use of medical personnel played a large part in solving the problems that were put to the public health service during the years of the Great Patriotic War. In spite of the fact that many physicians were in the ranks of the field forces, all of the positions of health inspectors [physicians] and epidemiologists were completely filled and all of the rural medical districts were manned. As the regions that had been occupied by the fascist invaders were liberated, much work was done to restore the destroyed public health network, to assign medical personnel, to eradicate the sanitary consequences of the occupation. All this work was pursued in accordance with the decree of the SNK and Central Committee of VKP(b) dated August 1943: "on the necessary measures to restore farms in areas liberated from the German invaders" (11).

While the guns were still roaring on the fronts during the Great Patriotic War, and the enemy had yet to be routed, the Soviet government made several important decisions that played a large part in the subsequent development of public health. First priorities were in the field of planning medical science and training medical personnel. The USSR Academy of Medical Sciences was founded in 1944, and a decision was made to switch medical VUZ to a 6-year training period.

After the total defeat of Fascist Germany, the Soviet people, under the leadership of the Communist Party and Soviet government, turned to work on problems dealing with restoration and development of a national economy, to completion of the building of socialism.

As a result of putting in order the network and organizational-staff structure of public health institutions in the post-war period, it became possible to further improve the quality of public health planning. There was a sharp reduction in the nomenclature of public health institutions and categories thereof were established. This made it possible to plan, on the republic and overall Union scale for the growth in volume of medical care, at hospitals and polyclinics, in organic coordination with the growth of the network of institutions, and to plan in outlying regions the rational location of the network of public health institutions in cities and rayons. The territorial and shop district principle was firmly adopted in public health practice and it became the basis for planning the medical care of the adult and child urban population, as well as industrial workers. The mistakes made during the early years, of unifying hospitals and polyclinics, which did cause some detriment to the planning of polyclinic care, were subsequently corrected. Much attention was devoted to improving the planning of medical care for the rural population, and particularly to strengthening the rayon level, supplying rural areas with medical specialists, increasing the technical level of rayon hospitals, developing rayon-level sanitary and epidemiological stations, creating qualified public health management on the rayon level.

During this period there was significant intensification of the scientific and methodological guidance of public health planning on the part of the USSR Ministry of Health, and there was an increase in number of physicians who were planning specialists, and credit for this should be given to a significant extent to the Chair of Public Health Organization at the Central Institute for Advanced Training of Physicians. The USSR Ministry of Health developed and issued a number of standards dealing with ambulatory-polyclinic and hospital care for the urban population and industrial workers, work load of physicians and paramedical personnel, staff standards for public health institutions, work standards referable to ancillary therapeutic and diagnostic departments and offices, lists of equipment, etc. Publication in the 1950's of the work by I. I. Rozenfel'd, "Principles and Methods of Public Health Planning," which consisted of three parts, was of great importance to raising the scientific level of public health planning and increasing the qualifications of planning personnel. Methods began to be developed for studying the standards of urban and rural requirements with reference to medical care, and several scientific investigations dealing with this subject were published.

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At all stages, Party congresses were the main landmarks that summarized what had been achieved and outlined the task for further development of the building of socialism. The 21st CPSU Congress, which convened in 1959, established that "... the Soviet nation, as

a result of the most profound transformations in all areas of social life, on the basis of the victory of socialism, has moved to a new period of development--a period of full-fledged building of a communist society" (12). The control figures for development of the national economy of the USSR for 1959-1965 were approved at the 21st CPSU Congress; they also provided for significant growth of public health.

An historic decree of the Central Committee of the CPSU and USSR Council of Ministers was adopted on 14 January 1960: "Measures for Further Improvement of Medical Care and Health Protection for the People of the USSR" (13). For the first time, by special decision of the Party and government, a specific program of development of medical care and health protection for the working people for a planned period was defined with reference to development of Soviet public health. This program was complex and addressed itself not only to public health agencies, but also to the councils of ministers of the Union republics and local bodies of Soviet power, to departments, Party trade-union organizations, the USSR Academy of Medical Sciences and other scientific institutions, to many medical workers, and the broad Soviet community.

In this decree, the Central Committee of the CPSU and USSR Council of Ministers set the assignments dealing with an increase in number of hospital beds over a 7-year period, the main directions of capital investments and development of the public health network, indicating the need for providing large hospitals, by enlarging existing ones and with regard to newly constructed ones. Indications were also given with respect to improved training of medical personnel and advancing their qualifications, in particular with regard to training stomatologists and health inspectors [physicians]; the decree ordered local Party and soviet bodies to take the steps for considerable improvement of working and living conditions for medical workers, particularly in rural areas, and to provide them with housing. The decree included a comprehensive developed plan for development and strengthening of the material and technical base of public health; there were provisions for a considerable growth in the output of drugs, medical technology and other medical products; development of the pharmaceutical area, production of medical furniture, supplying medical institutions with vehicles, etc. The decree also included assignments pertaining to implementation of measures to further lower the incidence of and to eradicate infectious disease, and it also indicated the main directions of scientific research dealing with the most important public health problems. Much attention was given to sanitary measures to be implemented by agencies and industrial enterprises, to eradicate and prevent the pollution of reservoirs of water, soil and atmospheric air, to improve conveniences in cities, to further improve working conditions and safety practices in industry, etc.

The decree of the Central Committee CPSU and USSR Council of Ministers dated 14 January 1960 played a large guiding and mobilizing part in the development of public health and it aided in the successful fulfillment of the 7-year plan.

A new, third-party program, a program of building the material and technical base of a communist society was adopted at the 22nd CPSU Congress in 1961. The main economic task for the Party and Soviet people--according to the decisions of the 22nd CPSU Congress program--was to create, within two decades, the material and technical bases of communism: "As a result, the USSR would have at its disposal productive forces of an unprecedented strength, it would exceed the technological level of the most developed countries and would occupy first place in the world with regard to output per capita. This would serve as the basis for gradual transformation of socialist relations into communistic ones, a development of industry that would generously meet the needs of society and all its citizens.... Development of new technology would be used to radically improve and alleviate the working conditions of Soviet people, to shorten the work day, to improve living conditions, to eradicate heavy physical labor, and then to eliminate all unskilled labor" (14).

Implementation of this grand program would mean that there would be further considerable improvement of the physical condition of the people and that the medical-care requirements of the public would be met in full. Questions dealing with public health care are reflected in several parts of the program, which proceeds from the fact that protection and constant improvement of the health of the entire people is "provided by a system of socioeconomic and medical measures."

"A broad program of measures will be implemented that are directed toward the prevention and a decisive reduction in the incidence of diseases, the eradication of mass-scale infectious diseases, and a further increase in life expectancy" (15).

In a special section dealing with the concern for health and increasing life expectancy, the CPSU program sets forth the following tasks in the field of public health development: "The urban and rural needs will be completely met with regard to all types of highly qualified medical services. Fulfillment of this task will require expansive construction of medical institutions, including hospitals and sanatoriums, supplying all medical institutions with modern equipment, dispensary coverage of the entire population of our country. Particular attention should be devoted to development of a network of institutions for mother and child care in urban and rural areas" (maternity homes, consultation centers, children's sanatoriums and hospitals, forest schools, etc.).

"Along with the existing free medical services, the use of sanatoriums for the sick as well as the dispensation of drugs will become free" (16).

The program also sets forth broad tasks dealing with the development and construction of institutions for workers to rest in, boarding houses, suburban hotels and tourist bases, and the development of mass sports and physical culture.

The CPSU program indicated a number of new theoretical and practical problems to workers in the field of public health planning, and some of the previous problems gained new formulation in the light of

the CPSU program. The problems included determination of complete public requirements with reference to highly qualified medical services, means of overcoming differences between the level of medical services rendered to the urban and rural population, methods and order in which one should proceed toward complete coverage by dispensary supervision of the population, the direction of construction of hospitals and of medical institutions, the means of scientific technological progress in medicine, and several others. All these problems require much intensive scientific and organizational work, and they cannot be considered resolved even at the present time.

Work pertaining to setting standards is being improved in the public health system. Orders of the USSR Minister of Health dated 20 July 1960, No. 321, "the status and measures for further improvement of ambulatory polyclinic care of the urban population," and No. 395, dated 31 July 1963, "the status and measures for further improvement of hospital care of the population of the USSR," which were issued in accordance with the work of All-Union conferences dealing with ambulatory polyclinic and hospital care of the public were program documents that established, under conditions, the pace, structure and direction of the work of the two main areas of therapeutic and preventive activities. The Institute of Social Hygiene and Public Health Organization imeni N. A. Semashko is developing new staff standards for medical institutions.

All this was very important to the further improvement of public health planning. The All-Union census taken in 1959 (for the first time after the Great Patriotic War) provided exact information about the population, and this provided data pertaining to the availability of different types of medical care in intensive indices, making it possible to plan the level of medical care in relation to the morbidity rate.

Public health planning is directed toward resolving the most important problems: of lowering the incidence of most widespread diseases, the eradication of mass-scale infectious disease, and the development of specialized types of medical care. Complex plans are being developed to control tuberculosis, cancer, cardiovascular and other disease; psychiatric care and other plans are being developed. These measures are reflected in a number of decrees issued by the government of the Soviet Union and of the Union republics, and in orders of the USSR Ministry of Health.

Along with further improvement of the methods involved in public health planning, a broad front of scientific research is developing, the objective of which is to investigate urban and rural requirements referable to different types of medical care, and substantiation of the standards for meeting these requirements in the long-term and annual plans. The Department of Public Health Organization and the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko is working on scientific problems pertaining to public health planning; also, since 1956, this work has been pursued by the Department of Public Health Economics and Planning created at this institute, with a section on long-term planning. Much work dealing with the scientific substantiation of medical care standards is being

done by the Department of Public Health Organization of the Moscow Institute of Hygiene imeni F. F. Erisman and the Department of Public Health Organization of the Ukrainian Institute of Municipal Hygiene. A number of chairs of social hygiene and public health organization at medical institutes (Leningrad, Vinnitsa, Kishinev) and specialized scientific research institutes are also working on scientific problems of public health planning.

The successful fulfillment of the 7-year plan for the development of the national economy in 1959-1965 was an important stage in fulfilling the task set forth by the CPSU program. This period was characterized by further growth and strengthening of socialist economy on the basis of scientific technological progress, further improvement of socialistic social relations, and raising of the material and cultural standards of the people. In 1966, the 23rd CPSU Congress summarized the fulfillment of the 7-year plan and approved the directives for the 5-year plan of development of the USSR national economy for 1966-1970; it was a new and important phase in the struggle of the Soviet people for the creation of a material and technical base for communism. In accordance with the decisions of this congress, "the Party considers the main economic objective of this 5-year program to be, on the basis of comprehensive utilization of the achievements of science and technology, industrial development of all social production, increased effectiveness thereof and of the productivity of labor, to provide for further considerable growth of industry, stable rapid development of agriculture and thereby to obtain a substantial rise in the standard of living, with fuller satisfaction of the material and cultural requirements of all Soviet people" (17).

There will be a considerable increase in the quality and level of medical care for the people. In 1970, the number of hospital beds will reach 2,680,000, which means an annual increment of about 100,000 beds. There will be an increase in the number of physicians and paramedical personnel. The rapid growth of the medical industry, the output of which will increase by 1.7 times in the 5-year period, a production of the latest medical equipment and effective drugs will provide for elevation of the technical standards of medical institutions. The provision of better housing and working conditions, municipal conveniences, and special purposeful preventive measures, together with the dissemination of hygienic information and the development of physical culture and athletics among the growing generation, will facilitate a further decline of morbidity ascribable to a number of mass-scale diseases.

A circular letter pertaining to the plan for public health development in 1966-1970, dated 16 March 1964, and sent by S. V. Kurashov (USSR Minister of Health) to the administrators of republic and oblast (kray) public health agencies, in connection with development of the draft 5-year plan of development of the USSR national economy, mentioned the following principal tasks involved in the 5-year plan for public health development: "The principal tasks for public health agencies and institutions in 1966-1970 are: further improvement of the mental and physical development of children in all age groups and of the physical condition of the entire population, the lowering of morbidity and mortality, particularly among children;

the eradication and lowering of the incidence of infectious disease; comprehensive improvement of the quality of therapeutic and preventive care for the public; improvement of the management of medical science and work with scientific personnel; further improvement of the quality of training in the highest categories of paramedical and pharmaceutical personnel, as well as specialization and advanced training thereof, and placement and utilization of personnel; technical improvement and perfection of the material and technical base of public health; further improvement of sanitary inspection of working conditions in industry, construction and agriculture; adherence to hygienic requirements in the construction and reconstruction of industrial enterprises, construction of machinery and use of new types of raw material, particularly in view of the broad use of chemistry in the national economy; control referable to the protection of atmospheric air, water reservoirs and soil from pollution; control over implementation of hygienic requirements with regard to the teaching, working and leisure of students; creation of the necessary industrial, living and medical conditions referable to female labor and leisure; improved drug supply to the people and public health institutions; improvement of technical supervision of the work done in the medical industry; intensification of the dissemination of medical and hygiene information; broader involvement of the public in implementing measures to improve working and living conditions; and control over the activities of public health institutions."

According to the instructions given in this letter, the material resources allocated for the 5 years from 1966 to 1970 should be directed primarily toward the following: "development of a network of medical institutions in areas of new industrial construction, particularly enterprises in the chemical industry located beyond populated areas, to back up complex construction; expansion of the network of medical institutions to service the rural population, bearing in mind that conditions must be created in the current 5-year period to equalize the quality of medical services rendered to the urban and rural population; expansion of the network of hospitals and sanatoriums for individuals suffering from tuberculosis in order to create the conditions for further lowering of the incidence of tuberculosis; development of a network of psychiatric hospitals for the purpose of more complete hospitalization of mental patients" (18).

The decisions of the 23rd Party Congress mark a new and higher stage in the development of planning of the entire national economy and of public health planning. Having decisively condemned voluntaristic methods in economic planning and management, these decisions are directed toward intensified scientific management of socialistic economics, toward the fuller use of objective patterns of development and economic laws of socialism to accelerate the building of communism to increase the scientific-technological and economic substantiation of the plans. Also, the decisions of the 23rd Congress pose new and greater demands of public health planning. It is imperative to determine, on a scientific basis, the role of public health in creating the material and technical base of communism, to investigate the interaction between public health and economics, and to establish the place of public health in the national economic plan. The most rational and effective use must be made of the enormous material and

manpower resources available to public health, without allowing for excessive expenses and losses. We must solve the problem of assimilating the results of scientific-technological progress in public health practice, bearing in mind that this is a complex problem that includes joint areas of medical science, medical industry, questions of organizing the work of medical institutions, training medical and technical personnel, and material and technical supply. One must determine the effectiveness of the planned measures pertaining to public health development, and one should strive to obtain the maximum results in lowering morbidity and mortality, and in improving the health status of the public. These things demand further improvement of public health planning and a raising of the scientific level thereof.

The tasks that face us in the field of public health planning, in the light of the decisions of the 23rd CPSU Congress, require collective creative work on the part of planners, economists and public health organizers, in close collaboration with representatives of the general economic and scientific planning front. We have no doubt that these tasks will be successfully fulfilled.

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This book constitutes a generalization of the main theoretical and methodological questions of public health planning. It proceeds from the most important Party and government decisions dealing with public health planning, and instructions of the USSR Ministry of Health; it analyzes the principal methodological procedures adopted in planning medical care for the people and the most important standards. In addition, the author presents his point of view concerning some questions of theory and methods of public health planning, and further improvement thereof in the light of the tasks set forth by the CPSU program and the decisions of Party congresses. Attention is also given to questions of methodology of scientific research in the field of public health planning.

In essence, this book deals with questions of planning medical care for the people; development of the public health network, and the furnishing of its medical personnel. Questions relating to financing, material and technical supply, the pharmaceutical service, and medical science planning are directly involved in public health planning, and are parts thereof, but because of the specificity and special methods involved in their development, they could not be covered in this work and should be the subject of independent investigations.

Chapter 8 of this book, "Staff Standards for Medical Institutions and Their Role in Public Health Planning," was written by A. K. Khristyukhin, who is a scientific staff member of the Department of Public Health Economics and Planning, All-Union Institute of Social Hygiene and Public Health Organization imeni N. A. Semashko.

We hope that this book by A. P. Zhuk' will be useful to practicing and scientific workers dealing with public health planning, and that it will be received with interest by public health organizers.

FOOTNOTES REFERRED TO IN INTRODUCTION

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3. PLAN ELEKTRIFIKATSII RSFSR (Plan for Electrification of the RSFSR), Gospolitizdat, Moscow, pp. 43-44, 1955.
4. Z. P. Solov'yev, IZBRANNYYE PROIZVEDENIYA (Selected Works), Moscow, Part 1, p. 332, 1956.
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6. ISTORIYA KOMMUNISTICHESKOY PARTII SOVETSKOGO SOYUZA (History of the Communist Party of the Soviet Union), Moscow, p. 426, 1962.
7. Z. P. Solov'yev, IZBRANNYYE PROIZVEDENIYA, Moscow, p. 324, 1956.
8. Idem, Ibid, p. 328.
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10. MATERIALY XXII S"YEZDA KPSS, Moscow, p. 43, 1966.
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12. MATERIALY VNEOCHEREDNOGO XXI S"YEZDA KPSS (Proceedings of the Extraordinary 21st Congress of the CPSU), Moscow, p. 138, 1959.
13. The text of the decree was published in PRAVDA, 20 January 1960, and in the journal, SOVETSKOYE ZDRAVOOKHRANENIYE (Soviet Public Health), No. 2, 1960.
14. MATERIALY XXII S"YEZDA KPSS, Moscow, p. 369, 1961.
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16. Ibid, p. 392.
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18. "Circular Letter About the Plan for Public Health Development in 1966-1970," No. 01-23/2, 16 March 1964.

Chapter 1

THE SUBJECT AND METHOD OF PUBLIC HEALTH PLANNING

Theory of Public Health Planning as a Scientific Discipline

In the USSR and other socialist countries, public health planning is an inseparable component of national economic planning. Social production in the USSR is performed on the basis of state economic plans. In a textbook on economic planning published in 1963 by the Moscow Institute of National Economy imeni G. V. Plekhanov, planning is defined as the "organized will of producers directed toward co-ordination and comprehensive development of all branches of the national economy in accordance with its economic laws for the purpose of increasing satisfaction of the material and cultural requirements of the people" (1).

This definition, which appears somewhat cumbersome at first glance, appears to us to best cover all of the most important features of economic planning in the USSR: one goal and the means of reaching it, planning on the basis of learning and the use of the economic laws of development of society.

A socialist state is a state that plans: "Planned management of the economy is the most important feature of the administrative and organizational functions of a socialist state" (2).

In a socialist society, development of the economy is based on objective patterns that are determined by the economic laws of socialism, the principal one being the basic economic law of socialism. For this reason, economic planning in the USSR is scientific planning based on scientific knowledge of the economic laws of socialism.

Scientific planning of the USSR economy becomes possible and necessary by virtue of the action of the economic law of planned and proportionate development of the national economy under socialism. This makes necessary the existence of a theory of national economic planning as a scientific discipline occupying its own independent place in the ranks of economic disciplines, next to such disciplines as political economy, statistics, economic geography, etc.

The next distinctions of economic planning determine the content of theory of economic planning as an economic science:

a) economic planning proceeds from the action of the economic laws of socialism under specific historic conditions determined by the range of the planning period. For example, the first 5-year plan of economic development was designed to build the foundation of socialist economics; the second 5-year plan was a plan to complete

the socialist reconstruction of the national economy; the 7-year plan of economic development for 1959-1965 and the USSR economic development plan for 1966-1970 reflect successive stages of creation of the material and technical base of communism outlined by the CPSU program. Within the framework of the general economic laws of socialism, each of these periods presents its own patterns that are disclosed in the relevant long-term and annual plans of economic development;

b) economic planning on the basis of the economic policy of the Communist Party and Soviet government, decrees of Party congresses, plenary sessions of the Central Committee of the CPSU and decisions of the Central Committee of the Party define and describe in detail the scope, rate and proportions of development of the national economy as a whole and of special national economic balances. For example, expanded socialist reproduction requires that the rate of increment in production of producer goods (subdivision A) must be faster than the rate of increment of production of consumer goods (subdivision B). However, it is only scientific planning that determines the specific rate of growth of both subdivisions in each planning period. During the period of the full-fledged building of communism, it is planned to bring the rates of growth of these two areas closer to one another. While in the 5-year period of 1961-1965 there was a 58% increase in production in Group A and a 36% increase in group B, according to the directives approved by the 23rd CPSU Congress for development of the national economy in 1966-1970, it is planned to provide for output growth of 49-52% for producer goods and 43-46% for consumer goods (3);

c) the national economic plan proceeds from scientific forecasting, since the subject of planning consists of processes of development of the national economy over the projected period.

At some stages, overestimation of the role of the subjective factor in planning (and ignorance of the fact that when preparing plans of national economic development it is imperative to base one's work on scientific knowledge of the objective economic laws of socialism) led to fallacious and harmful voluntaristic views which tried to impose their arbitrary positions and rates on the development of socialist economics, and this was separated from objective reality. In the report of L. I. Brezhnev to the 23rd CPSU Congress, it was noted that "... because of a subjectivistic approach some oversights were made in development of the 7-year plan and some premature steps were taken. The planned expansion of production in some sectors was not always consistent with the actual opportunities" (4).

We could also cite some examples from the history of public health planning. Thus, by decree of the TsIK of the USSR dated 3 September 1934, a plan was approved for the enrollment of 33,500 people in medical VUZ in 1937, as compared to 15,610 people in 1934 (5). To implement this plan it would have been necessary to open dozens of new VUZ within 3 years and to train numerous instructors, which could not be done. This plan turned out to be unrealistic. In 1940, enrollment constituted only 23,000 people (counting the VUZ of physical culture and sports); it was only in 1959 that enrollment constituted 33,200 people (6). Let us give another example. By decree

of the USSR TsIK and SNK dated 27 June 1936, "concerning the banning of abortions, increasing material aid to new mothers, setting up state aid to large families, broadening the network of maternity homes, creches and nursery schools, intensifying criminal punishment for failure to pay alimony, and certain changes in legislation dealing with divorces," provided for doubling the number of beds in permanent urban and rural creches by 1 January 1939, bringing the number up to 8 million beds (7). Yet the number of beds in permanent creches in 1940 constituted 859,500, i.e., less than half the number planned for 1938, and in 1965 there were over 2.4 million infants in permanent creches and children of creche age in creche-nursery schools (8).

We could cite other examples of miscalculations in public health plans that were related to wrong planning methods, and to not taking into account the balance between different parts of the plan, with consequent disruption of the required proportions. Thus, under the influence of temporary difficulties in placing and employing young specialists who had graduated from stomatological institutes, in the 1950's there was inadequate planning of enrollments in stomatological institutes and faculties, and this resulted in the subsequent need to again expand enrollment and open new stomatological faculties. There was a 46.2% increase in the total number of physicians in the USSR between 1950 and 1958 (not counting dentists), and only a 34.6% increase in the number of stomatologists. But from 1958 to 1965, with a 41.2% increase in the total number of physicians, there was an 82.1% increase in the number of stomatologists. After hospitals were unified with polyclinics, planning of polyclinic care as an independent type of medical care was eliminated, and planning of all medical care for the public was made only according to number of hospital beds. This erroneous method resulted, in some areas, in a lag in development of polyclinic services for the urban population.

The degree of accuracy of planning depends upon scientific knowledge of objective patterns of projected development of the national economy.

The directives of the 23rd CPSU Congress with reference to the 5-year plan of USSR economic development in 1966-1970 stress that the most important task is to raise the scientific level of national economic planning. They state: "in the field of economic sciences one must concentrate on further development of theory of planned management of the economy on the basis of in-depth investigation and use of the economic laws of socialism, on determination of the ways and means of improving the effectiveness of national production, and on using economic incentives in the development of production" (9).

After the October 1964 plenary session of the Central Committee CPSU, the Communist Party and Soviet government initiated several measures to improve the scientific level of state planning. These measures were expressed in the decisions of the March and September 1965 plenums of the Central Committee of the CPSU. In his report to the September plenum of the Central Committee CPSU, A. N. Kosygin formulated these tasks in the following manner: "according to the provisions in the economic plan, the rates of growth of production,

growth of national income and of the principal proportions should be optimum, i.e., they should provide for the best and most efficient use of the available opportunities in accordance with the objective economic laws of socialism. Against the background of today's scientific technological revolution, the objective of planning consists of providing for rapid industrial assimilation of the latest advances of science and technology.... The role of long-term plans must be advanced, and a system of scientifically substantiated planning standards must be developed.

"Thereby we can avert the possibility of the manifestation of voluntarism in planning and we shall be able to create the conditions for improving the effectiveness of national production" (10).

All this stresses with particular force the importance of the theory of economic planning as an independent science with its own subject and, accordingly, an independent methodology and methods of investigation. In the textbook on economic planning mentioned above, the subject and tasks of theory of economic planning are formulated as follows:

"Planning theory is a science that deals with the economic laws of socialism as they apply to specific reproduction conditions, their specific manifestations in the most important processes of reproduction, and in the patterns of rates and proportions--so that, as the result of investigation made with due consideration of the economic policy of the Party, and the achievements of science and technology, we can substantiate the scope, rate and proportions of national production" (11).

The theoretical and methodological bases of public health planning are determined by the theory and methodology of the planning of the entire national economy. Public health planning (on the basis of scientific knowledge of the economic laws of socialism and objective patterns of development of socialist public health, proceeding from the tasks set forth by the CPSU program in the field of public health) determines the quantitative proportions of public health in the overall plan of development of the national economy, the rates and levels of development thereof, internal proportions in the development of different branches of public health, and in the different types of medical care and specialties.

Scientific planning of public health will require, first of all, determination of the link between the development of public health in the USSR and the basic economic laws of communism. At the present time, most economists of our country have adopted the following formulation of the basic economic law of communism: "the essence of the basic economic law of communism lies in its supreme goal of satisfying as completely as possible the constantly growing material and cultural requirements of all of society, on the basis of continuous development and improvement of production" (12). Unlike some other laws, for example the law of distribution of labor, the principal economic law applies to both phases of development of a communist society, and for this reason it is correctly called the basic economic law of communism.

The high level of public health is one of the most important human needs and prerequisites for the comprehensive physical and spiritual development of the individual. It is also a generalized expression of the highest standard of living that will be reached in the USSR as the result of building a communist society. Thus, reaching the highest level of health is directly related to the essence of the basic economic law of communism. At each given stage the public health service, as also will other branches of public social and cultural services, develops at an optimum rate tied to the overall planned and proportional development of the national economy.

As indicated in the program of the CPSU, the health protection and improvement of the people of the USSR are implemented by a system of socioeconomic and medical measures. As a result of fulfilling the tasks set forth by the program, broad measures are being implemented that are directed toward the prevention and decisive lowering of morbidity, the eradication of mass-scale infectious disease, and a further increase in life expectancy. Fulfillment of this program will be the result not only of improved medical services to the public, but of overall elevation of material and cultural standards--reaching the highest standard of living, the eradication of heavy physical labor, shortening of the work day, measures for labor safety, etc. "All for the sake of man, for the good of man," is the slogan of the Communist Party; this is the supreme goal in the building of a communist society.

Consistent improvement of the physical condition of the people is one of the results of complex efforts directed toward this highest goal. The indices of this level are the lower morbidity and mortality (including those referable to children), eradication of a number of diseases, prolongation of mean life expectancy, and improved physical development.

Better public health is brought about by planned measures implemented through various economic and cultural agencies and organizations, including public health bodies. The task for public health bodies in implementing the complex planned health-improving measures consists of initiative, scientific development of the direction and scope of these measures, determination of their effectiveness and the checking of their implementation.

Measures taken in the areas of construction of housing municipal amenities, labor safety and hygiene, the food industry and public catering facilities, and education of the growing generation are particularly important.

A CPSU program has set forth the task of meeting in full the requirements of the urban and rural population with regard to all types of highly qualified medical services. To implement this program it is necessary to determine the levels of public requirements for different types of medical care and the possible extent to which they can be satisfied within the framework of a specific planning period. Also to determine the main directions of the development of public health, the most rational organizational forms of medical care and measures to back up the public health plan with a material and technical base, as well as the provision of medical personnel.

The level of public health and the state and quality of medical care for working people have a great influence on the economy; they are important to raise the productivity of labor and to increase the nation's labor resources. If public health lags in some republic or oblast, city or rayon, or at a particular enterprise, it may be detrimental with regard to fulfillment of national economic plans. The development of public health aids in improving the effectiveness of national production and in fulfilling the main economic task during the period of the full-fledged building of a communist society, and the creation of the material and technical base of communism. For this reason, tasks of paramount importance with regard to public health planning include investigation of the role of public health in the country's economics and in fulfillment of national economic plans, and the appropriate direction of plans for the development of medical care. However, it would be wrong to attribute to public health merely a service role with regard to the material area of production. There is a dialectical unity of public health and production which was formulated, in its broader aspect, in the following words from the report of L. I. Brezhnev to the 23rd CPSU Congress: "Thus, the tasks in the 5-year plan reflect in organic unity development of the material and technical base and elevation of the standard of living of working people, the quantitative growth of national economic resources, and further profound qualitative changes in the economy, growth of productive forces and improvement of socioeconomic relations" (13).

Public health planning is based not only on the economic laws of socialism, but also on the specific patterns of public health development, namely the patterns of development of medical science and technology, the patterns of development of demographic processes and the physical condition of the public, and the patterns of development of organizational forms of medical care for the public. All these patterns are dealt with by the entire set of medical sciences, on the one hand, and by such disciplines as demographic and health statistics, social hygiene and public health organization on the other. The methods and data of these sciences should be borne in mind when planning public health; knowledge thereof will enrich theory and improve the practice of public health planning. The authors of the textbook, "National Economic Planning for the USSR," are correct when they write: "the set of planned processes are based on economic processes, and although such processes as, for example, raising the cultural standards of the people, development of science, art, etc., emerge, to some extent, as independent planning objects, they are based on national production which constitutes the principal object of investigation in planning theory" (page 13). This is completely applicable to public health planning as well.

For this reason, public health planning theory should be viewed as a special discipline, one of the branches of the general science--theory of national economic planning. It is closely linked with social hygiene and public health organization on the one hand, and with public health economics on the other. There are multifaceted links between public health planning and a set of medical and hygienic disciplines. First, with social hygiene and public health organization, they are determined by the following:

1. Public health is one of the sectors of the national economy that provides direct services to the public. All of the indices of development of medical care are determined by the relationship to the public as a whole or to different population groups (age-sex, urban and rural population, social and occupational groups). Scientific public health planning makes it imperative to pursue projected estimates of population size, structure and location over our country--a task referable to demographic statistics. Equally important to public health planning are data pertaining to public health statistics, particularly data pertaining to mortality, child mortality, mortality according to different causes of death, overall morbidity and morbidity involving temporary disability among blue and white collar workers.

2. Public health planning is based on scientific investigation of the patterns of development and spread of mass diseases, and this is a subject for epidemiological and sociohygienic investigations. The public health plan also reflects tasks dealing with further lowering of the incidence of the most important diseases and eradication of some mass diseases. The degree to which these tasks are defined is related to the level of our knowledge concerning the etiology of these diseases, and measures for the prevention and control thereof, as well as to the possibility of reflecting the required purposeful measures in the indices of the national economic plan or in the planned complex measures dealing with lowering morbidity. The morbidity level, along with other public health indices, is an index of the effectiveness of our planned measures in the field of safeguarding and strengthening public health.

3. Scientific public health planning requires preliminary definition of the basic principles of development of Soviet public health, and organizational forms and methods of pertaining to medical services. Such matters as the preventive direction of Soviet public health, forms of providing highly qualified medical care for the entire population, forms of dispensary supervision with coverage of the entire population, as well as definition of the most rational and effective types of medical institutions, their structure and size, are being investigated and resolved by social hygiene and public health organizations, by the investigative methods inherent in these disciplines.

4. Advances of medical science and technology powerfully influence public health planning, just as scientific technological progress as a whole affects planning for all branches of the national economy. They determine to a large extent the prospects of lowering morbidity and mortality, and make it possible to spell out realistic tasks in the plans in the required direction; they influence the organizational forms and methods of medical services to the public, the types and structure of medical institutions, the specialty qualifications of medical personnel, and the standards for running medical institutions. The assimilation of progressive methods of diagnosing and treating disease and the development of substantiated prophylaxis based on the latest achievements of medical science and technology constitute the most important tasks in public health planning.

Public health planning theory as a scientific discipline consists of the following sections: 1) Methods and organization of work dealing with public health planning; 2) tasks dealing with lowering morbidity and improving public health status; 3) standards for medical services to the public; 4) planning for development of the network and location of public health institutions; 5) planning with regard to labor and personnel in the field of public health; 6) planning medical scientific research; and 7) planning development of the material and technical base of public health and scientific medical institutions.

Being part of the theory of national economic planning, public health planning theory is closely related to public health economics as a discipline, the subject of which we believe it possible to formulate as follows: "public health economics deals with the forms of manifestation of economic laws of socialism in the field of public health, the role of public health in overall economics of a socialist society, the ways and means of rational and effective use of material, financial and personnel resources to fulfill the tasks put to public health by the Party and government, economic substantiation and evaluation of questions pertaining to public health organization with due consideration of assimilating new technology and advanced knowhow."

Public health economics as a scientific discipline consists of the following sections: 1) investigation of the role of public health in development of the national economy; 2) economic evaluation of the forms and methods of providing medical services to the public; 3) economics of medical institutions (the hospital area); and 4) public health financing.

The last section can also be considered as a part of the general science dealing with financing of the national economy; all of these sections are very closely related to problems of public health planning.

Economics and planning of public health are governed by the instruction in the CPSU program: "All levels of planning and management of the economy should concentrate primarily on the most rational and effective use of the material, manpower, financial resources and natural resources, with elimination of excessive outlay and losses" (14). Considerable financial and material funds are spent annually on public health; and a large number of people are employed in the system of medical care of the public. Questions pertaining to the most rational and effective use of these resources, on the basis of raising the level of the medical and economic activities of medical institutions, should be of important concern in public health economics and planning.

Public health planning and economics can be viewed as inter-related special disciplines that are included in the set of economic sciences, and are very close to the area of sciences dealing with socialist public health theory and practice.

The internal structure of public health planning theory as a scientific discipline and its relation to other disciplines are demonstrated in the chart.

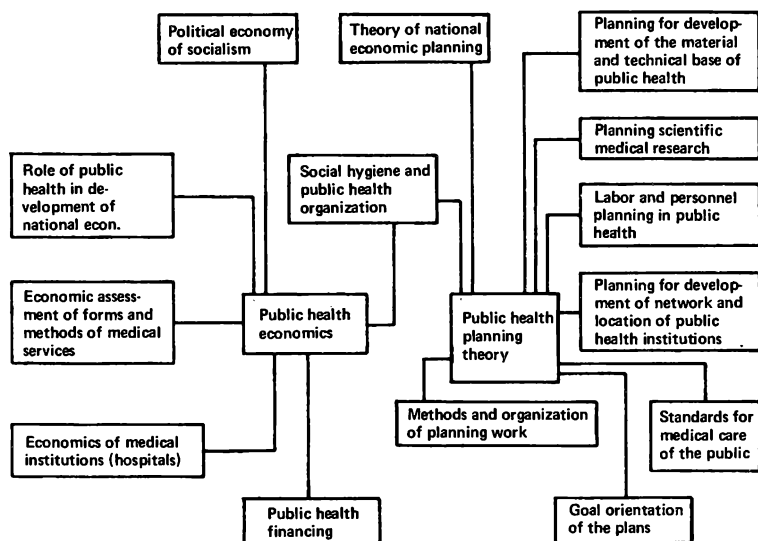


Chart of correlation between public health planning theory and other disciplines.

This analysis and the distinction of public health planning from a social hygiene and public health organization, and public health economics, indicate the similarity of the content of all these disciplines as a subject of scientific research and instruction on the one hand, and the specific and different content of each of these on the other.

This makes it possible and desirable, under certain conditions, either to combine the teaching of these disciplines or to teach them separately, or even to provide more differentiated instruction of different parts thereof. At medical institutes, questions of public health economics and planning should be included in the general courses on social hygiene and public health organization.

Depending on the nature of the groups attending the institutes for the advanced training of physicians, it is desirable not only to teach public health planning separately, but also to teach such subjects as hospital business, public health financing, etc.

Methods of Public Health Planning

The methodology of public health planning, as well as of the planning of the entire national economy, is based on the Marxist-Leninist method of dialectical materialism. "Materialistic dialectics is universal and the only correct method of gaining knowledge and for management of practical activity" (15). Planning has an active influence on the process of development of Soviet public health on the basis of scientific knowledge of public health's objective patterns, disclosure of its diverse relations to the planned development of the entire national economy of the USSR, the transition from quantitative to qualitative changes, and the disclosure and overcoming of non-antagonistic contradiction in the development of a socialist society.

On the basis of dialectical methods, the theory and practice of public health planning make use of special methods that reflect the specific objectives of national economic planning and the distinctions of public health planning as one of its branches.

These methods are not equivalent in significance or in conditions under which they are used, and they are closely related and inter-related. We refer to the following: a) the analytical method, b) the balance method, c) the standards method, d) the method of relations or proportions, and e) the experimental method.

All of these methods are used to some extent in planning theory and practice with regard to the entire national economy. Of prime significance is the main planning method--the analytical method.

The significance of the analytical method lies in that it is closely related to the patterns of development of the sector that is being planned, to its very essence, to the tasks put to it by the Communist Party and Soviet government which are reflected in the principal Party and State documents, and first of all in the CPSU program.

With reference to public health, the most important decree at the present time is the one issued by the Central Committee CPSU and USSR Council of Ministers on 14 January 1960: "Measures for Further Improvement of Medical Care and Health Protection for the People of the USSR."

The Lenin principle of the main link is the basis for concentrating the plan on the most important tasks of decisive and leading significance in the planning period. V. I. Lenin wrote: "We must be able to find at every particular time that special link in the chain that should be grasped with all our might so that we can hold on to the entire chain and prepare a steady transition to the next link...." (16). This principle determines faster and more effective development

of the "entire chain" and provides for proportional development as a whole.

When applying the analytical method to public health planning, the following factors are subject to analysis: a) implementation of the most important decrees of the Communist Party and Soviet government dealing with development of public health; b) the state of public health and the main correlations with regard to implementing different sections thereof by the end of the prior planning period, which is the starting point for the next plan; c) fulfillment of the plan for the last planning period and determination of the causes for overfulfilling or underfulfilling the plan with reference to different items; d) dynamics of development of public health for the last planning period; e) correlation between public health indices and the principal indices of the entire national economy (specific share, rate of growth); and f) objectives of the plan for public health development, rates and proportions, and quantitative expression of the main indices in the plan.

Comprehensive analysis of all these questions creates the foundation for constructing the public health development plan for the projected period of a year. Preparation of this plan is a very complex task and it requires thorough analysis at all stages. It requires determination, on a scientific basis, of the actual public requirements with regard to all types of medical care and the necessary material, financial and personnel resources to satisfy these requirements. In addition, preparation of a public health plan, like any other specialized plan, requires preliminary analysis of the general proportions in the overall national economic plan such as volume of production in the first and second subdivisions (production of producer goods and production of consumer goods), and, for the most important branches of industry, the plan for agricultural development, the plan for capital investments, the plan for labor and wage funds, the trade turnover plan, the correlation between allocation funds referable to labor and public consumer funds, the finance plan, etc.

A rather important part of these general items in the national economic plan is the territorial distribution in economic regions and Union republics.

It is a complex task to establish consistency of the plans for special sectors of the national economic ceilings, and in order to be properly resolved so that there is proportionality between all parts of the plan, there must be several stages, at each of which a thorough analysis is made of possible variants.

As in any other sector, the planning of public health without consideration of the overall proportions and rates of development of the national economy could lead to an unrealistic plan, failure to fulfill the plan as a whole or with regard to some items, and in some cases it could lead to a lag of medical service for some sectors of the national economy or in some economic and geographic regions. On the other hand, if one overlooks the special needs and tasks put before public health, it could lead to mechanical distribution of assignments and funds on the basis of previously existing proportions, and this

could be detrimental not only to development of a given field, but to development of the entire national economy as a whole.

After the principal items of the public health plan are defined within the general limits of the plan for development of the national economy (capital investment, finances, labor and personnel, supplies, etc.), analysis moves to a new phase. One must again analyze the level that will be reached by the end of the planning period, the proportions in development of different sections of public health and different specialties, the changes in quality of medical care rendered and its scientific and technical level, the results pertaining to strengthening public health and lowering morbidity. It may happen that some of the tasks set forth in the plan cannot be completely performed and completion must be transferred to the next planning period; or it may be necessary to concentrate forces and resources to resolve some sort of problems first, etc. It is only on the basis of such analysis that a final distribution of resources can be made so that there will be an operational and address plan: specification of objects of construction (itemized lists), allocation of financial funds, distribution of medical personnel, etc.

A thorough analysis of progress in fulfilling the plan is made throughout the planning period. This is all the more necessary since the Party program demands prompt correction and definition of the plans as they are being fulfilled: "Planning should be continuous, with organic combination of annual and long-term plans, with provision of financing and material and technical resources" (17). Such analysis should reveal and overcome difficulties in fulfilling the plan or different items thereof; some miscalculations in the original plan may be detected that require correction, there may be some new circumstances that did not exist at the beginning of the planning period, etc.

Thus, the analytical method is used at all stages of preparing and implementing the plan. This consists of analysis of the initial theses and fulfillment of the plan for the prior planning period; analysis of the objectives of the plan, the planned rate and proportions of development of public health; analysis of the proposed results of fulfilling the plan and the level that will be reached at the end of the planning period; analysis of the course of fulfillment of the plan.

The balance method, which determines the principal proportions of interrelated parts of the national economic plan, is directly related to the analytical method and is its most important component.

The balance method is particularly important for substantiation of correct proportions between the plans for development of different sectors of the national economy and different economic regions, and it finds predominant application in so-called summary sections of the national economic plan that deal with all branches of the economy such as, for example, the plan for labor, plan for capital investments, the finance plan, the trade turnover plan, etc. This method compares the use and distribution stipulated in the plan of the appropriate resources in the national economy (material, energy, personnel, finances, etc.)

to the proposed availability thereof. All special balances are combined in a single national economic balance that determines the main proportions in the overall national economic plan. The national economic balance system consists of the following principal balances: 1) balance of production, consumption and accumulation of national product; 2) balance of fixed capital; 3) balance of labor resources; 4) balance of production, distribution and use of the national product and national income; and 5) summary balance of the national economy.

Accordingly, the national economic plan involves development of some special balances such as, for example, fuel and energy balance, material balances of some of the most important types of industrial and agricultural products, the balance of income and expenses incurred by the public, and the state budget (balance of state income and expenses).

The public health plan occupies an appropriate place in all of the national economic balances. Let us consider, for example, such questions as number of employees and wage fund. When planning public health one must determine the number of public health employees and the sources from which the staffs will be manned, as needed for the planned network of medical institutions, as well as make the financial provisions for the required sums of cash to pay for the labor of these employees. However, this question cannot be answered before the question of balance of manpower resources is resolved in the national economic plan; it is determined by the overall population size referable to the employable age group, the extent of training of qualified personnel, their distribution in economic regions, etc.

This overall balance also takes into consideration separately the number of public health employees. The wage fund for public health employees is also closely related to the overall wage fund in the entire national economy, which, in turn, is related to the balance of income and expenses of the public and requires reconciliation with the fund of the consumer goods that may be offered to the public according to the trade turnover plan.

All of the balances are prepared in a physical and cost expression. For example, the scope of construction which is the main component of the capital investment plan is balanced with the plan for production of building materials, availability of mechanisms and additional production thereof, the plan for number of workers engaged in construction, etc. At the same time, it is also expressed as a sum of money that is provided in the finance plan for the financing of construction:

"The plans for growth of production and construction, development of transportation and trade turnover, distribution of manpower resources, raising the material and cultural standards of the public require material and monetary backup.... Planning of financial resources and distribution thereof are entirely and completely based on the projected rate of growth and proportions of distribution of the material assets and manpower resources contained in the national economic plan." The financial program in turn "submits its requirements with regard to the material and labor proportions" (18).

If these relationships and proportions are disrupted, there may be incomplete expenditure of allocated funds as well as disproportion in the process of implementing the plan, and occasionally it becomes impossible to finance some parts of the plan (construction, equipment, etc.)

In public health planning practice the following balances are of the greatest significance:

1. The balance in the plan for increment of the network and plan for construction and exploitation of new medical institutions. For a long time, because of acute need to broaden hospital bed provisions for the public and, on the other hand, because of the limited capital investments in the public health area, the increase in the number of hospital beds was planned without sufficient consideration of providing them through new construction.

Growth of hospital bed resources occurred largely due to use and remodeling of buildings transferred to public health agencies; at different stages, bourgeois homes, estates, kulak residences, buildings that were made available because of changes in the administrative territorial division of the country and reduction of the system, and other buildings were used for this purpose. Expansion of the bed resources also occurred by the use of the facilities of existing hospitals.

The share of beds put into use due to new construction in relation to the overall increment of hospital beds increased systematically.

In 1956-1961, 37.5% of the entire increment of hospital beds was due to new construction performed by state organizations, as well as at the expense of kolkhozes; this applied to 63% in 1962-1964, and to 70% of the hospital bed increment in the nation in 1965 (19).

In the future, the scope of new hospital and polyclinic construction must exceed the projected growth of the hospital bed network, since it will be necessary to replace the bed resources located in buildings that do not meet modern specifications for rendering highly qualified medical care, as well as in incorrectly relocated hospitals; it will be necessary to reconstruct the hospital resources in accordance with the requirements of modern medical science and technology.

¹To solve this problem more capital investments will have to be put in public health.

2. The balance of requirements with regard to medical personnel and the plan of training them, or to put it more briefly, the balance of medical personnel. This question is discussed in Chapter 9.

3. The balance of the plan for development of the network and assimilation of the latest technology with the plan of material and technical support, and first of all the plan for the development of all

types of medical industry, production of drugs, antibiotics, medical equipment and instruments.

The standards method plays an important part in public health planning. Standards make it possible to compare and evaluate similar but different levels and rates of development. There are the most diverse standards in national economic planning: standards of productivity of labor, expenditure of materials or electric power per unit production, depreciation of buildings and equipment, etc. Standards may be applied when using the balance method and they may serve to substantiate the appropriate proportions in the plan, but they may also have independent significance. In public health planning standards are exceptionally important.

The following standards are used in public health planning: a) standards dealing with meeting the public requirements with regard to medical care; b) standards pertaining to utilization of medical personnel labor; and c) standards pertaining to material and personnel back-up.

Let us discuss the standards to meet the public requirements with regard to medical care.

The medical care requirements change constantly in accordance with changes in the level and structure of morbidity, development of medical science and technology, growth of overall and sanitary standards. The program of the CPSU has repeatedly stressed the thesis of continuous growth of man's requirements in a communist society. It is important to mention the significance of scientific technological progress to development of public requirements pertaining to qualified medical care. K. Marx stated that: "Production creates consumption: 1) by producing material for it; 2) determining the means of consumption; 3) prompting in the consumer a need, the object of which is the product he creates. Therefore, it creates the object of consumption, the mode of consumption and the stimulus for consumption" (20).

Development of new requirements related to expansion and perfection of diagnostic and therapeutic methods, roentgenodiagnostics and roentgen therapy, development of electrocardiography, use of antibiotics, treatment with isotopes, etc., are an illustration of these words of K. Marx. Scientific medicine and Soviet public health do not respond passively to the public needs for different types of medical care; they actively form such need and give it the most correct and rational direction. It is not only therapeutic but also preventive medicine that is being included more and more in the requirements of the public with regard to highly qualified medical care.

At the early stages of public health planning, when the task had not yet been set of completely meeting the demands of the entire population with regard to highly qualified specialized medical care, the study of the actual extent of requirements was not yet a pressing problem. At the present time, we are compelled to determine scientifically the extent of actual needs of the public for different types of medical care without, however, overlooking the fact that this very need

is a historic parameter, it is dynamic, it is related to the continuous change in factors that determine it, and it can be defined only for a specific segment of time. In planning, this parameter should be determined as a yardstick so that one can assess the means of bringing the actual index and the planned standard close to it.

Determination of medical care requirements of the public should be based on statistical studies of morbidity and of the activities of medical institutions and personnel. The actual requirement is in essence a hypothetical statistical figure that determines the magnitude of public requirements toward the end of the planning period, whereas the index of actual availability of medical care to the public at the start of the planning period is a real magnitude reflecting the existing level. For this reason, for scientific substantiation of standards it is of decisive importance to use the statistical method (method of mean values and method of groupings).

The expert method has found broad application in scientific substantiation of requirements. The use of this ancillary method is based on individual expert evaluation of specific cases, and it proceeds from general scientific instructions that are developed by special scientific research institutes and chief specialists.

The results of individual assessments are subject to statistical processing. One must adhere to the principle of representativeness, if we consider that an expert evaluation can be made only on the basis of a statistical sample.

Expert evaluation of the results of statistical processing can be made by the chief specialists and specialized scientific research institutes only for the purpose of making certain adjustments; however, one should not recommend that the requirement level be determined solely on the basis of such a method (without statistical processing of individual evaluations).

It would be wrong to confuse the level of medical care requirements with the extent to which they are met or with the planned standards of availability of a given type of medical care. The need exists objectively, independently of the extent to which it is satisfied at the present time or of the extent to which it is planned to satisfy it in the future. This need can be studied with more or less accuracy; however, it cannot be regulated by any decree, order or instructions. Standards are a different matter; a standard is the actual index of availability to the public which one plans to reach and which can be implemented by medical personnel, finances and capital investments. A standard ensues directly from the requirement level. In the case of total satisfaction of public requirements with regard to highly qualified medical care, as provided by the CPSU program over a 20-year period, there will be a coincidence of the medical care requirements of the public and the standards of satisfying them. So long as requirements are not completely satisfied, the standard will lag to some extent behind the actual need. However, it is imperative to know the level of a need when planning, since it ultimately determines the direction and order of the planned measures to meet this

requirement. There may be provisions for differentiated medical care for different population groups--for example, children, industrial workers, the inhabitants of the most important industrial centers--predominant development of specific specialized types of medical care as related to the social significance of specific diseases, the sequence of implementation of measures dealing with the change to total coverage of the population by dispensary supervision, specific rates at which the levels of availability of hospital and polyclinic care will be equalized for the urban and rural population, etc.

Standards reflect the proportions between different organizational forms of medical care rendered by individual specialists, as well as between so-called principal and ancillary sections of therapeutic and preventive services, which ensue from the general tasks of public health and development at a time of full-fledged building of a communist society. Scientific substantiation of the standards should aid in assimilation in medical practice of progressive and the most effective methods of diagnostics, treatment and prophylaxis, on the basis of the latest achievements of medical science and technology.

Scientific substantiation of the standards should proceed from the following premises: a) it should be directed toward fulfilling the main tasks set forth in the national economic plan and the public health development plan; b) it should take into consideration the projected changes in population size, age-sex structure and territorial distribution; c) it should include the study of the patterns and prospects of lowering morbidity in the USSR, Union republics and economic regions of our country; d) substantiation of standards for different types of medical care requirements should be based on analysis of medical care requirements with reference to the main nosological groups; e) substantiation of the standards should be pursued in conjunction with the search for the most rational and effective organizational forms and methods of medical care and organization of medical personnel labor, on the basis of the latest achievements of medical science and technology; f) it should reflect the balance relationships between public health and other sectors of the national economy, as well as within the public health system (network, personnel, construction, material balance); and g) in view of the task stipulated in the CPSU program of coverage of the entire population by dispensary supervision, the most important objective is to develop standards for dispensary services to the public.

The standards should be based on the principles involved in indications for hospitalization, dispensary supervision (groups and frequency of observation), duration of hospital care referable to different types of diseases, nature and scope of laboratory, x-ray and other diagnostic tests, etc., which are scientifically established and recommended by the appropriate scientific research institutes.

The medical care standards should be differentiated for different republics, oblasts and economic regions with due consideration of local distinctions, as well as for employees in the most important branches of industry. The differentiated standards should reflect the specific distinctions of the relevant economic and geographic

zones--the demographic structure, level and structure of morbidity, cultural and living habits, and conditions under which medical care is rendered.

To satisfy this requirement, the standards that are recommended by scientific research institutes or by orders of the USSR Ministry of Health must be worked out according to age groups, classes and isolated forms of disease, and this will make it possible to set standards for different regions with due consideration of the distinctions referable to the age-sex structure of the population and local pathology.

The republic, oblast and municipal (in large cities) health departments, when working out specific standards for the relevant republics, oblasts and cities, adjust them in accordance with the following data: a) statistical data pertaining to the age and sex structure of the population and morbidity rate, as well as volume of medical care rendered to the public and different groups thereof (those employed in the most important branches of industry, leading groups of agricultural workers, etc.); b) the main indices of the national economic plan for a given republic, oblast or city, and in particular the overall population growth and growth in number of blue and white collar workers in different sectors of the national economy, projected growth of specific populated areas, changes in age and sex structure of the population, as well as assumptions concerning possible changes in morbidity level and the tasks involved in lowering it; c) data pertaining to the extent to which medical care requirements are met with reference to different medical specialties; and d) the results of scientific research and statistical studies pursued in the republic, oblast or city dealing with morbidity and level of medical services rendered to the public.

We can cite an example. The estimated standards for urban hospital care approved in order No. 217-m, dated 29 October 1954, issued by the Minister of Health, were set at 1.2 pediatric beds per 1,000 population. However, the share of child population is not the same in different republics and oblasts. An estimate reveals that with this standard, there would be 5.2 beds per 1,000 child population in Latvian SSR and only 3.1 beds in Uzbek SSR. Thus, when using the mean Union standard without differentiation for different republics, the child population of Uzbek SSR would be in a less advantageous position with respect to hospital and polyclinic care than the mean for the entire child population of the Soviet Union, or the children in Latvian SSR and a number of other Union republics. Similarly, there cannot be a single standard for number of maternity beds, when there are different birth rates in the different Union republics; nor can there be the same standard for number of hospital beds for tuberculosis patients, when the incidence of tuberculosis is different in different areas, etc. As for other specialties where there is a less marked relation to specific age or sex groups, or specific classes and forms of disease, here too (in the presence of overall Union standards that are differentiated according to age and sex groups) the standard for a specific republic or economic region could be computed more accurately by standardizing the all-Union standard

according to age-sex structure of the population of this republic (or economic region). Another solution would be to specially develop regional standards of requirements for different economic regions following a standardized method; but, as shown by experience, this is extremely laborious work that requires the involvement of many people and considerable funds.

The medical care standard cannot be directly tied in with the national economic plan, since it does not include the extent of the material, personnel and financial expenses that should be provided in the plan to implement the standard. For this, another stepping stone is needed, which we call the activity standard or, as I. I. Rozenfel'd called it, "function" (function of a bed or physician post).

Thus, with regard to hospital bed services, the standard would be the bed turnover, or the number of patients per bed who would receive hospital care in the course of a year, and for the physician's post--the number of visits per post per year.

Like the standards for satisfying needs, the standards of activity are in the nature of mean estimated indices.

Hospitalization time per bed per patient depends on severity of illness, effectiveness of therapy, presence of complications and concomitant disease, the patient's age and other factors. With a sufficient number of patients, the statistical patterns make it possible to define the mean figure both to measure the actual index and the planned standard. In exactly the same manner, when determining the mean standard of a physician's work load during polyclinic office hours, the actual work time spent to see one patient varies depending on whether this is a new patient or a repeat visit, the need to use instruments for examination, the complexity of the therapeutic intervention, etc.

The activity norms are usually established by state legislation or departmental statutes. These are primarily state standards for the work schedule of different categories of medical personnel.

We have standards of work load for different medical specialists referable to polyclinic office hours that have been approved by order No. 321 dated 20 July 1960, issued by the USSR Ministry of Health.

Work standards for laboratory technicians, workers in x-ray and physiotherapy departments and offices are regulated.

When planning standards referable to activity, one should proceed from the task set forth in the Party program: "to achieve the most results in the interests of society with the least expense--this is the immutable law of economic construction" (21).

Proper organization of labor, rational use of work time, adoption of mechanization and automation in the ancillary sections of medical service and patient care, proper placement of medical personnel--all this is an extremely important task and, on the basis of fulfilling it,

an appropriate standard can be set that would provide for the most effective and rational patient treatment, which is the main goal of the activities of medical institutions.

After determining the function (activity standard), one can turn to the standard that is directly reflected in the national economic plan; it expresses the extent of development of the public health network and it ultimately defines the volume of expenses involved in implementing the plan. The hospital care bed and the post of physician for polyclinic care are units for all planning estimates: personnel, material, finances. The implementation norms are material in nature; for example, lists of equipment, norms of laundry supply, nutrition norms, drug supply norms, etc. One of these norms is calculated separately to implement a new network and to implement existing institutions, with due consideration of depreciation, obsolescence and assimilation of new technology. Others, such as nutrition and drug supply norms, are planned exclusively to back up current work of medical institutions.

The norms pertaining to the supply of medical and administrative personnel for public health institutions are reflected in the staff standards approved by the USSR Ministry of Health for medical workers, employees in the engineering and technical service, dining rooms and kitchens of therapeutic institutions, and those approved by government bodies for administrative personnel. Finally, the standards referable to material and personnel back-up correspond to the financial standards with distribution according to paragraph and item of expenses that are the basis of budgeted allocations for public health.

With proper planning, the standards referable to material and personnel back-up ensue from the standards of requirements and standards of activity (function), and they are directly related to the latter. However, while the first two groups are of an estimated and statistical nature, and they serve to substantiate the public health section in the national economic plan, the standards for back-up are directly reflected in the public health plan and, in accordance with the general principles of the national economic plan, they are necessarily of a directive nature. This thesis is not altered by the fact that public health administrators and chief physicians of medical institutions have the right to regroup, within certain limits, the allocations and staff on the basis of local distinctions.

The correlation method is of ancillary significance in planning. It is based on the fact that in public health practice and in the course of planning specific correlations are formed between different elements of the plan that are not interrelated by specific balance or cause and effect links. In particular, some of these correlations were correctly noted by I. I. Rozenfel'd and G. A. Popov, who analyzed them in their works and articles dealing with public health planning.

For example, in his work entitled "Fundamentals and Methods of Public Health Planning," I. I. Rozenfel'd observed that there is a link between the overall level of availability of polyclinic care to

the public and the distribution of visits according to specialties. With increase in the overall index there is a decrease in share of visits referable to the main or broad specialties (general medicine, surgery, pediatrics, obstetrics and gynecology), and there is an increase in share of visits referable to so-called narrow specialties.

Certain correlations are also formed between the indices of hospital and ambulatory polyclinic care. For example, a standard was established of two visits per year referable to general medicine per urban resident (I. I. Rozenfel'd, page 125) and 2.2 general medical hospital beds per 1,000 urban population. Thus, when this standard is reached, there would be 910 polyclinic visits per general medical hospital bed or, on the basis of 340 days of bed occupancy per year, there would be 2.7 polyclinic visits per hospital bed-day. Let us consider that when analyzing the existing or planned availability of care to the public we would find other correlations, for example, there would be 2.2 polyclinic visits per bed-day. Such a situation would indicate that there is a lag in development of polyclinic care in relation to hospital care, and it would prompt us to search for the reasons for this lag; they could consist of inadequate development of the polyclinic network, incomplete manning of the staff of physicians, inadequate function of the physician's post, improper distribution of such posts in different specialties, etc.

However, it is not difficult to see that such conclusions can and should be obtained by means of direct analysis of intensive indices, and not on the basis of some correlation or other.

We must object to excessive use in public health planning of extensive indices and of planning on the basis of specific shares. We refer, for example, to the distribution of visits or posts of physicians according to specialties; the distribution of physician posts among so-called main and ancillary types of medical care, etc. The specific share could be of some significance only as an illustration of the significance of some index or other.

Planning must be based on intensive indices. In the history of public health planning, and at some stages thereof, one had to reluctantly use the indices of correlations and shares, since data were not available about the population, its age and sex structure, or else there were depersonalized data pertaining to physician posts for hospital and polyclinic care of the public.

Thus, the correlation method, which is of ancillary value, retains its significance only as a check or signal method, or to illustrate the significance of some thesis in the plan.

The experimental method has heretofore been little used directly for public health planning. It is of enormous significance to planning to use experiments in public health organization and economics, to investigate and assimilate the advanced knowhow with regard to organizational forms and methods of medical services to the public, organization of labor of medical personnel, assimilation of modern

medical technology, optimum resolution of the problem of types and structure of medical institutions, and proper placement thereof.

More recently, mathematical methods and electronic computer technology are finding more and more application in the USSR national economy, in different areas of management, accounting, planning and financing. Some knowhow has already been accumulated with regard to the use of computer technology at some clinical institutes. In the area of public health organization and planning, studies involving the use of mathematical methods and computer technology are still at the research stage. We can refer to the works of A. S. Georgiyevskiy and L. Ye. Polyakov (Leningrad), V. I. Kant (Kishinev) dealing with optimum arrangement of a medical network in a rural area, and that of E. S. Antipenko (Moscow) dealing with setting standards for emergency medical care. Mathematical methods hold some promise in public health planning with regard to investigating optimum size and structure of hospitals, arrangement of the network of medical institutions, effectiveness of organizational aspects of medical care, setting staff standards, etc.

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Chapter 2

SYSTEM OF INDICES AND FORMS OF PUBLIC HEALTH PLAN. ORGANIZATION OF WORK TO PREPARE AND IMPLEMENT THE PLAN

The Place of Public Health in the National Economic Balance and in the System of Indices of the National Economic Plan

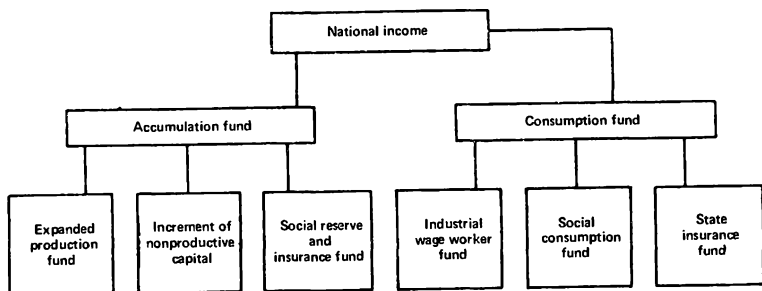
In planning, it becomes necessary to use a standard method for quantitative expression of planned processes, i.e., the same plan indices are required. We cite the definition of the concept of "index" given in the "Statistics Dictionary:" "An index is one of the main concepts of statistics which refers to the generalized quantitative characteristic of socioeconomic phenomena and processes in their qualitative definition, under conditions of a specific place and time.... The aggregate of indices that comprehensively reflect the development of society forms a system of indices" (1). This definition is completely applicable to the indices of the national economic plan.

Public health is one of the sectors of the national economy. The public health plan is related to the overall plan of development of the national economy in accordance with specific proportional correlations and it is a balanced plan with regard to the indices of the finance plan, the plan for labor and personnel training, for capital investments, for provision of the material and technical base. These proportions are not stable; rather, they consistently change at different stages of development of society.

The place of public health in the national economic plan is determined by its place in the distribution of the national income as indicated on the Chart (2).

Development and improvement of medical care for the people make it necessary to increase the number of hospitals and polyclinics, to augment the hospital bed resources, to improve the supply of apparatus and equipment to medical institutions, transportation, etc. All this makes it necessary to direct part of the national income toward increment of the fixed capital of public health. These material and cash resources constitute the part of the accumulation fund that is intended for increment of nonproductive capital; in addition to public health, this section includes the housing fund, municipal administration fund, trade, education, social security, etc.

Public health is reflected in the balance of the national economy in the consumption fund, in the part that constitutes the so-called social consumption fund.



One can view public health in two aspects, as part of the social consumption fund, with regard to its cost and tangible form, and in analyzing the balance of the national economy. In the first place, it constitutes the sum of material assets and services provided to the working people over and above their wages, i.e., over and above the wages of blue and white collar workers and the income of kolkhoz workers; it is included among the indices of standard of living as a generalized expression of improved material welfare and cultural standards of working people. In the second place, in the balance of the national economy, public health is expressed as a certain sum of financial and material resources acquired to back up the activities of medical institutions; this includes the wages of employees at these institutions, means of existence in kind, upkeep and nutrition of patients, drugs, and the implementation of the administrative activities of public health institutions.

While in the first aspect the level of medical services to the public can be expressed by an index such as health care expense per year per resident, in the second aspect one can use a generalized index such as the cost per hospital bed.

The relevant indices for the USSR, according to the State budget and other financing sources, are submitted in the Table.

As provided in the Party program, there will be approximately a 5-fold increase in the national income in 1961-1980; the annual national income will constitute 720-750 billion rubles in 1980, versus 146.6 billion rubles in 1960 (3). At the same time, the social consumption fund will increase from 24.5 billion rubles to 255-265 billion rubles, i.e., by more than 10 times, and it will constitute about 50% of the overall national income (4). There will be a substantial change in the proportion of individuals engaged in industry and in the nonproductive area. Growth of industrial and agricultural production will be obtained primarily due to the increase in productivity of labor and, to a lesser extent, due to an increase in number of workers.

	<u>1940</u>	<u>1950</u>	<u>1958</u>	<u>1965</u>
Expenses referable to public health and physical culture (billions of rubles) ¹	0.9*	2.6	5.0	9.4
Population (millions of people) ²	194.1	178.5	208.8	231.9
Number of hospital beds (thousands) ³	790.9	1010.7	1532.5	2225.5
Expenses per resident (rubles)	4.5	14.6	20.3	36.2
Expenses per hospital bed (rubles)	1138.0	2600.0	3393.0	3775.0

¹ "National Economy of the USSR in 1965," pp. 781, 783.

² Ibid, p. 7.

³ Ibid, p. 750.

* Only on the State budget.

At the same time, the number of individuals engaged in non-productive branches (education, public health, etc.) will almost triple in this 20-year period (5).

All this cannot help but play a part in increasing the share of public health, as well as that of other branches of social and cultural services, in the distribution of national income, State budget and in the overall sum of actual income of the population.

We shall submit data on specific indices in some parts of the national economic plan and the place occupied by public health.

Since public health is essentially a branch of republic-level affairs, the share of the corresponding indices for public health in capital investments and finances is much larger in the republic balance than it is in the All-Union one.

General Theses Concerning Public Health Plan Indices

In addition to the summary part of the national economic plan, it contains special sector sections reflecting development of different sectors of the national economy, such as industry, agriculture, transportation, trade, education, public health, etc. Each of these branch sections of the plan has its own system of indices which ensue from the specific distinctions of a given branch. In our subsequent presentation we shall describe the indices for the public health sector of the plan. The public health plan is prepared according to these indices, not only with regard to the system of the USSR Ministry of Health, but also in the main plan of public health development in all agencies and organizations that have a medical and health service (Ministry of Railroads, Ministry of Civil Aviation, Ministry of Internal Affairs, AUCCTU, etc.)

The plan indices may be either approved or estimated. The former are approved by the USSR Council of Ministers or the councils of ministers of Union republics. The approved indices are usually more general in nature and characterize development of the sector as a

whole, determining its place in the overall national economic plan. They directly determine the extent of financial expenses in a given sector, capital investment, labor and material resources. As a rule, these indices are directive in nature. They are included in the established forms of the national economic plans. With regard to public health, such indices include the number of hospital beds in existing hospitals, those under construction and in the process of being put into operation, number of posts of physicians. Among the approved indices are also some of the most important theses of the plan, implementation of which is controlled by the government. Thus, of the total number of hospital beds, the number of beds for patients with tuberculosis and for mental cases are singled out. The number of indices subject to approval in the Union national economic plan is extremely limited (a list of indices and the forms of the national economic referable to public health for 1966-1970 are given elsewhere in this chapter).

	<u>Total for national economy</u>	<u>Referable to public health</u>	<u>% of overall index</u>
Mean annual number of blue and white collar workers (thousands) ¹	76,918	4,277	5.6
Number of specialists with higher education (thousands) ²	4,891.0	461.9	9.1
Specialists with secondary specialized education (thousands) ²	7,179.4	1,378.6	19.2
Number of students in VUZ (1965-1966) ³	3,860.5	242.5	6.3
Number of students in secondary specialized schools (1965-1966) ³	3,659.3	345.1	9.4
Expenses referable to the USSR State budget (billions of rubles) ⁴	101.6	6.7	6.7

¹ "National Economy of the USSR in 1965," Moscow, 1966, pp. 558, 559.

² Ibid, pp. 575, 576.

³ Ibid, pp. 689, 690.

⁴ Ibid, p. 781.

The estimated indices serve a different role in the plan. In the first place, they include all of the relative indices, since the plan is approved with absolute figures. For example, the plan approves an absolute number of hospital beds for the end of the planning period, while the estimated indices indicate the rate at which the bed resources will increase according to plan, the number of beds per 1,000 population, etc. In the second place, they indicate the method used to determine the approved indices in the plan. For example, the planned number of beds depends on the number of hospitalized patients, duration of hospital care and mean days of bed occupancy per year. The planned increase in number of hospital beds referable to one specialty, for example general medicine, may be motivated by the need to increase the number of hospitalized patients; with reference to another specialty, for example phthisiology, it may be necessary to increase the duration

of hospital care; in another field, for example, neurology, both may apply. The indices that are estimated also include those that cannot be planned by virtue of their nature but that must be taken into consideration in substantiating the plan; for example, changes in age structure of the population or in morbidity level. Finally, the estimated indices may represent an interpretation of the plan indices that are subject to approval. These indices include, for example, distribution of bed resources according to specialties. Some estimated indices are in the forms of the plan, others are of a working nature and are intended to substantiate and provide details of the plan when it is submitted to superior planning and government agencies.

An important prerequisite for developing the system of planning indices dealing with public health is that there must be unity between the plan indices and statistics, the plan and the budget. This does not mean that the indices are identical and in the same form. Statistics and budget have their own special tasks and distinctions, and they are reflected in the forms of statistical records and budget estimates. However, these indices must be comparable, since the plan is based on statistical data and it should be consistent with the public health budget for the planning period. Let us submit an example. A statistical report submits 19 types of hospital institutions in cities whereas the plan indices indicate only 9: hospitals, maternity homes, dispensaries, medical institute clinics, hospitals and scientific research institutes, nonunified ambulatory polyclinics, emergency stations, blood transfusion stations and medical health centers. However, the total number of institutions, number of beds in them and number of physician posts for the reported year should coincide in the plan indices and statistics, and this is provided by the forms of the plan and the statistical report.

The following main indices are used in public health planning:
 a) indices of medical services to the public; b) indices of hospital bed use; c) indices of utilization of medical personnel labor; and d) indices of providing the public with medical institutions and personnel.

In addition to these indices, there may be others, particularly in such areas as preparation of the financial plan, the plan for capital investment, material supply and equipment of medical institutions.

Indices of Medical Services to the Public

The indices of medical services express the volume of medical care rendered to the public or provided in the annual or long-term plan. Determination of the value of these indices is the first stage of planning. For ambulatory polyclinic care, this volume is expressed in number of visits; for hospital care--in number of cases of hospitalization. Like other indices, they may be expressed in absolute and relative figures--in number of visits per resident or in number of hospitalizations per 100 or 1,000 population. The indices of volume of services are not among those that are subject to approval and they are not contained in the established forms of the plan, since they do not directly express the material base of public health.

The main significance of these indices to public health planning is that they determine the extent to which public requirements are satisfied, and they serve as the basis of standards of providing medical care to the public. Of the above-mentioned two indices, the number of visits per resident has long since been adopted in the public health planning as the initial estimated index of volume of ambulatory polyclinic care.

On the basis of the number of hospitalizations and mean number of hospitalization days per patient per bed, one can determine the required number of bed-days to provide hospital care for the people. For example, if 19,000 people are hospitalized in a city with a population of 100,000, with mean duration of hospital care of 18 days, all of the hospitalized patients will spend $19,000 \times 18$ or 342,000 bed-days. This will constitute a mean of 3.4 bed-days per resident.

One can estimate the required number of hospitalizations in two ways. The first variant is to determine the percentage of hospitalizations in relation to the population size, and the second is to determine the same percentage in relation to the number of registered illnesses (screening for hospitalizations). Each of these variants has its advantages. The first variant has a more stable base, which is the population size, and it permits comparing the hospitalization level in different cities and regions with different levels of polyclinic care. The second variant has the advantage that, in the vast majority of cases, hospitalization is prescribed in practice by screening patients who are seen at the polyclinic; it permits better planning of the extent of hospitalizations according to nosological forms and specialties. It should be noted that the difference between the specific values of the two indices is not large, since overall morbidity of the urban population is slightly greater than one illness per resident (1,100-1,200 illnesses per 1,000 population). Thus, in a city with a population of 100,000 with 120,000 requests for medical attention and 19,000 hospitalizations, the hospitalization percentage will be 19, whereas hospitalization screening will constitute:

$$\frac{19,000 \times 100}{120,000} = 16\%$$

Indices of Utilization of Bed Resources and Hospital Bed Occupancy

A certain volume of medical care can be provided by a specific amount of beds or number of physician posts, depending on the extent to which it is rational and effective to use the beds and how productively the labor of physicians and paramedical personnel is used. For this reason, it becomes necessary to obtain a number of estimated indices expressing the thoroughness of utilization of the bed resources, occupancy of hospital beds and effectiveness of medical personnel labor.

Utilization of hospital beds is determined by the number of days of bed occupancy per year. In some foreign countries it is measured directly as a percentage of the number of days of bed occupancy in relation to the number of days in a year, i.e., 365 days. Thus, with 320-day occupancy it would constitute 87.7% and with 340 days--93.1%.

A low index of bed occupancy may be indicative of unsatisfactory manipulation of bed resources, incorrect distribution in different specialties, excessively long repairs, and occasionally it is the result of a poor quality of services, for example in some rural hospitals. When there are not enough beds in different specialties, the number of days of bed occupancy may be close to 365, and in some cases even greater, since the number of actually used bed-days may be larger than the number of bed-days spent on estimated beds (additional make-shift beds).

The index of activity of a hospital bed is the bed turnover, or number of patients that the bed can accommodate in one year. In turn, this index is related to the mean hospitalization time per bed, and it equals the number of days of bed occupancy per year divided by the mean number of days of hospital treatment. For example, in the case of 340 days of bed occupancy per year and mean hospitalization per patient of 17 days, bed turnover will be 20. Obviously, the shorter the hospitalization time and the greater the bed turnover, the more patients can be provided with hospital care with the given number of beds and the fewer beds will be required to hospitalize a specific group of patients. For this reason, one should strive to make the most rational and economic use of the bed resources, avoiding unnecessary extension of diagnostic tests, providing prompt performance of operations and therapeutic measures, as well as prompt discharge of patients who do not require further hospitalization. However, one should not overlook the fact that the hospitalization time depends on the diagnosis, course of illness, presence of complications, nature of therapeutic measures, etc. The desire to obtain a greater bed turnover at all costs could lead to a poorer quality of the therapeutic process and premature patient discharge. In some cases, for example tuberculosis, prolonged (9-12 months) hospital care is indicated to assure lasting recovery. Assessment of hospitalization time per patient per bed should be made with due consideration of the effectiveness of treatment, bearing in mind the experience gained at progressive therapeutic institutions.

The indices of utilization of bed resources and activity per hospital bed link the indices of volume of hospital care to the indices of availability of hospital beds to the public. For example, with hospitalization of 20% of the population, mean hospitalization time per bed of 17 days and with 340 days of bed occupancy per year, the bed requirements per 1,000 population will be:

$$\frac{200 \times 17}{340} = 10 \text{ beds}$$

One would arrive at the same result by using another calculation method: with hospitalization of 20% of the population and bed turnover of 20, one would need $200/20 = 10$ beds.

The indices of utilization of physicians' labor are discussed in Chapters 8 and 9.

Indices of Availability to the Public of Health Care Institutions

A certain material and technical base, a certain number of hospital beds and medical personnel, are required to fulfill the outlined plan for development of medical care. The indices of growth of the network of public health institutions and medical personnel are directly reflected in the system of indices of the national economic plan.

The indices of development of the public health network in cities and rural areas, considered according to their territorial arrangement, do not yet reflect the availability of medical institutions and personnel to the urban and rural population, since urban therapeutic and preventive institutions, particularly oblast and rayon facilities in rayon centers (which are urban settlements) also provide medical care to the rural population to some, occasionally significant, extent. For this reason, two series of parallel indices are usually submitted: the indices of territorial arrangement of the bed network and physician posts in urban and rural settlements, and the indices of availability of beds and physicians to the urban and rural population. Of course, the indices of the former group will always be higher for cities and lower for rural areas than the corresponding indices in the latter group.

The method of analyzing indices referable to therapeutic and preventive care of the rural and urban population is described in Chapter 3.

The following are indices of development of the network of public health institutions: 1) number of therapeutic and preventive institutions separately for cities and rural areas; 2) number of beds in institutions, according to types; and 3) number of physician posts. In cities it is planned to have a network referable to nine types of institutions: 1) hospitals, 2) maternity homes, 3) dispensaries, 4) clinics and medical institutes, 5) hospitals and scientific research institutes, 6) nonunified ambulatory polyclinic institutions, 7) emergency medical care stations (independent and those contained within other institutions, 8) blood transfusion stations (independent), and 9) medical health centers, independent and those contained as part of other institutions. For rural areas, only hospitals, maternity homes, dispensaries and ambulatory polyclinic institutions of the nonunified type are planned. In both urban and rural areas, there are departments that are operated on the basis of cost accounting and those maintained on the basis of special funds. Separate plans are made for psychiatric and neuropsychiatric hospitals, the network of which is referable to the entire population, urban and rural, regardless of territorial location, in cities or rural areas.

The plan indices are submitted in preparing the annual plans as follows: a) the indices for the year preceding the year of preparing the plan, according to the records; b) the indices for the current year, when the plan is being made, referable to expected fulfillment; and c) indices for the year for which the plan is being prepared. Thus, when preparing the 1968 plan, figures are given for each index as follows: the reports for 1966, expected plan fulfillment in 1967, and for the 1968 plan. When preparing long-term plans, the main indices

are given not only for the end of the planning period, but also for each year thereof. Thus, when preparing a 5-year plan for 1966-1970, indices are given for 1964 (report), 1965 (expected fulfillment), 1966 (plan), the projected indices for 1970, as well as for the different years in the 5-year program: 1967, 1968 and 1969.

It is extremely important, when preparing a plan, to evaluate as precisely as possible fulfillment of the plan for the current year. For this purpose, one must make use of the data pertaining to the progress of construction of public health institutions, current information of public health bodies pertaining to deployment of the hospital bed network, reports pertaining to the arrival to assigned areas of young specialists who have graduated from higher and secondary medical institutions, the data of special screenings, etc.

In the plan, the number of beds and number of physician posts are indicated for the end of the planning year. However, in many cases, it may be necessary to determine the mean annual number of beds and physician posts. This becomes necessary, for example, when determining the percentage of hospitalizations, number of medical visits, and public health budget. The mean number of hospital beds and physician posts equals the number thereof as of the start of the planning year plus the mean annual increment in the course of the planning year. With uniform growth of the network throughout the year, the mean annual increment will equal half the absolute increment as of the end of the year. Since there are more newly constructed facilities that become operative in the second half of the year, while physicians and paramedical personnel who have graduated from medical institutes and schools start working in the network only in the third quarter, the mean annual increment of number of hospital beds and physician posts is usually slightly smaller than half the absolute increment.

All of the indices (number of institutions, number of beds and number of physician posts) are given in absolute figures. The absolute figures determine the size of the planned network and number of physician posts, the size of financial resources, capital investments, material supply, number of medical personnel required to provide for fulfillment of the plan. By means of the indices of the plan expressed in absolute figures, the public health plan is directly tied in with the overall national economic plan. The rate of growth of the public health network is expressed by comparing the absolute indices at the beginning and end of the planning period.

The number of hospital beds is the index of development of the network of hospital institutions. In addition to this index, the number of hospital institutions is also planned.

The number of institutions, as a plan index, expresses the planned structure of the network of therapeutic and preventive institutions, it provides for operational and specific planning, it ties the network development plan with the plan for construction and operation of new hospitals, as well as enlargement of existing ones. Before 1946, no plans were made for the number of institutions. The addition of institutions to the plan indices constituted a transition from depersonalized planning, consisting of reference to a certain percentage of

hospital bed increment as function of the planned increment of budgeted public health expenses, to objective planning of the network. When submitting a plan for network development, one must give the exact substantiation where and with reference to which facilities deployment of new beds will be provided. In the last few years there has been a consistent increase in the share of beds deployed as a result of new construction. The public health plan form includes a special table which explains the plan for locating the newly deployed network of public health institutions. It indicates the names and location of newly organized institutions or existing ones the size of which will be changed in the planning year, as well as the capabilities of the institutions--existing and projected; it also indicates whether the planned increase in capabilities is provided due to construction and reconstruction, location of beds in newly remodeled buildings and in existing hospitals, sources of financing and target dates. Facilities are also indicated in which beds will be closed down due to complete or partial cut down of activities. The necessary explanations are given for each facility--brief descriptions of the building (facility).

Objective planning provides for checking implementation of the decree issued on 14 January 1960 by the Central Committee CPSU and USSR Council of Ministers, with reference to enlargement of hospitals, as well as order No. 395 issued on 31 July 1963 by the USSR Minister of Health: "Status and Measures for Further Improvement of Hospital Care for the People of the USSR," which banned further expansion of bed resources of hospitals without allocation of additional buildings.

After a long search, in the history of public health planning in the USSR, it was decided to use the "physician post" as an index of development of ambulatory polyclinic care. In this respect, it corresponds to the significance of the index of the "hospital bed" referable to development of hospital care. By means of several intermediate calculations, this index expresses the link between volume of ambulatory polyclinic care rendered to the public and development of the network, and increased capabilities of ambulatory polyclinic institutions. The inclusion of data in the statistical report dealing with public health up to 1948, characterizing the number of physician posts in the polyclinic network as a whole and in different specialties, laid the foundation for planning ambulatory polyclinic care.

The situation changed when hospitals and polyclinics were combined. In actual practice of therapeutic and preventive services, it became difficult to distinguish between physician posts referable to ambulatory polyclinic and hospital care, especially in the presence of the so-called two- and three-link system. The staff standards stipulated at that time by the USSR Ministry of Health (orders No. 738-m dated 4 September 1950 and No. 278-m dated 27 March 1951) proceeded exclusively from the number of beds, and they did not take into consideration the capabilities and volume of activities of polyclinics unified with hospitals. The statistical report also failed to supply data pertaining to the number of physician posts referable to ambulatory polyclinic care of the urban and rural population. All this could not help but affect the planning indices: the number of physician posts referable to

polyclinic services was excluded from the number of indices in the plan, while new indices were not found for this purpose.

Orders No. 282-m dated 26 December 1955 and No. 33-m dated 4 March 1957, which were issued in the mid 1950's by the USSR Ministry of Health approved the separate staff standards for hospital and polyclinic services to the public. However, these indices were not distinguished either in the statistical reports or forms of the plan, and they could be determined only with some approximation by means of the calculations discussed in Chapter 3. According to this method, the overall number of posts of physicians, paramedical and junior medical personnel in unified hospitals is distributed between the ambulatory polyclinical and hospital area of work. Since 1965, of the total number of posts of physicians and paramedical personnel in therapeutic and preventive institutions, distinction was made of the number of posts referable to the polyclinical sector of work; however, this applied only to the posts directly involved in ambulatory polyclinic visits and house calls. As for the posts referable to personnel of therapeutic-diagnostic, ancillary departments and offices, as well as other personnel included according to the staff schedule in the institution as a whole, they could be distributed in the hospital and polyclinic only on the basis of estimates. The methods involved for such calculations were used in the forms for the 1968 public health plan.

The plan for development of therapeutic and preventive care is prepared according to specialties; with regard to some groups of physician posts it is also planned in accordance with the nature of the groups that they service. At the present time, the plan has adopted the following grouping of specialized types of therapeutic and preventive care: Internal medicine with distinction of the following general medical posts: district physicians engaged in ambulatory polyclinic care of the public, and shop physicians; surgery: traumatology and orthopedics; oncology; urology; stomatology with separate indication of posts of stomatologists and dentists; obstetrics and gynecology (the obstetric and gynecological beds are listed separately in the plan, while the physician posts are given in a single line); phthisiology, with distinction of beds for children suffering from tuberculosis; dermatovenereology; pediatrics (noninfectious diseases) with distinction of district pediatric posts; infectious diseases, with the distinction of hospital beds for childhood infectious diseases; neurology; ophthalmology; otorhinolaryngology; psychiatry; hospital beds and physician posts to care for patients suffering from leprosy; other specialties.

For each of the above specialties, indication is made of the projected number of beds and physician posts, after which the subtotal is given for all these specialties.

Then follow specialties and groups of physician posts in which only the posts are planned (without the bed resources).

These refer to chief physicians and their deputies; physicians involved in physical culture and medical supervision of those engaged in physical culture and athletics; physicians dealing with therapeutic

and preventive care of employed adolescents; physicians involved in therapeutic and preventive care in schools and nursery schools; physiotherapists; laboratory technicians who are physicians; roentgenologists; radiologists (with the exception of radiologist-oncologists); physicians involved in emergency medical services; pathologists; physicians at blood transfusion stations; physicians at health centers; physicians who are statisticians, etc.

The grand total of physician posts referable to therapeutic and preventive institutions is obtained taking these posts into consideration.

The list of specialized types of therapeutic and preventive care is somewhat abbreviated with reference to rural areas. The posts of district internists and pediatricians, shop physicians, physicians servicing specific groups, physicians of health centers, and physicians referable to some specialties that are rarely encountered in rural areas have been excluded. At the same time, a group of general practitioners has been added who work in rural medical districts and rural walk-in centers.

The indices of the plan for development of therapeutic and preventive care for the urban population include indices of territorial district and shop services. These indices include the number of general medical (territorial and shop), pediatric and obstetric-gynecological districts.

The existing procedure for setting standards of district services leaves room for contradictions. For example, the population size of a therapeutic district has been established at 4,000 people serviced by 1.5 posts of district practitioners. If the district has a population of more than 4,000, and if there are 1.5 district therapist posts, the physicians are overloaded and, conversely, if the district population is smaller, they will not be busy enough. Even with the same population size in a district, the adult and child population may vary, depending on the distinctions in the age structure of the population, and this must affect the correlation between district therapeutic and pediatric services. In industrial regions a well-developed shop service for industrial workers, there may be duplication in planning for district shop services to workers on the job and territorial services referable to their place of residence, and this could result in excessive staff assignments. All this made it necessary to add in the analysis a number of estimated indices of district and shop service, and this is provided in the forms of the public health plan of the USSR Ministry of Health, namely:

1. Size of the entire population living in one territorial therapeutic district.

2. Number of posts of district therapist per territorial therapeutic district.

3. Population size referable to: a) one territorial therapeutic district and b) per district therapist post.

4. Number of physician posts referable to shop doctors per therapeutic shop district.

5. Adult population size constituting the average per district therapist post (territorial and shop district).

6. Number of posts of district pediatricians per pediatric district.

7. Size of child population: a) per pediatric district and b) per district pediatrician post.

8. Size of the entire population referable to one obstetric-gynecological district.

9. Female population size referable to one obstetric-gynecological district.

Until recently, planning was performed separately for the network of creches and nursery schools. Creche services were primarily under the jurisdiction of public health agencies and the nursery schools were in the jurisdiction of public education and administrative bodies. Public health bodies planned the development of the creche network under all agencies, making a distinction of the creches that were financed by the public health agency budget. With the organization of a new mixed type of preschool institution--creche-nursery schools--which service infants and preschool children, the public health bodies began to prepare plans for the network of creches and creche-nursery schools that were referable only to the public health budget. Plans are made for the number of children and number of physician posts in creches and creche-nursery schools in urban and rural areas. The plan indices do not separate the children attending creche-nursery schools according to age groups--infants and preschool children. When necessary, such a division is made by means of calculations.

There are four planned indices with reference to the sanitary and epidemiological area of work: sanitary and epidemiological stations, in addition the sanitary and epidemiology departments of combined rayon hospitals (the number of such departments, as well as the number of physician posts in them are excluded from the relevant Table for the network of therapeutic and preventive institutions), the number of disinfection stations and number of health education centers. The plan indicates the number of such institutions and the number of physician posts in them.

With reference to forensic medical expertise, the number of offices of forensic medical expertise and number of physician posts in them are provided in the plan.

With reference to feldsher care, the plan provides for the number of institutions (feldsher health centers, including independent ones, feldsher-midwife centers, kolkhoz maternity homes) and number of posts referable to paramedical personnel.

The indices of development of a network of sanatorium and resort institutions in the system of the USSR Ministry of Health consist of the number of beds per day of maximum use and number of physician posts. Plans are made separately for beds and physician posts in the budgeted sanatoriums, with distinction of sanatoriums for adults, including those for patients with tuberculosis, and sanatoriums for children, including those for children suffering from tuberculosis, for patients with rheumatism and for patients with poliomyelitis; separate plans are made for sanatorium beds and physician posts in sanatoriums that are operated on a cost accounting basis.

One line indicates the number of beds operating the year round on a budgetary and cost accounting basis. In addition, the plan provides for a number of beds and physician posts in prophylactic sanatoriums [for preventive care].

The following are the indices of development of the pharmacy network: A) those referable to the system of pharmaceutical administrations, separately for urban and rural areas: pharmacies, drug stores (in cities only), pharmacy centers, including group I centers, pharmaceutical stands, and other pharmaceutical institutions; B) pharmacies in therapeutic and prophylactic institutions. For all types of pharmaceutical institutions, the plans reflect the number of pharmacist posts and the number of assistant pharmacist posts (for the reporting year the number of scheduled staff posts and occupied posts is indicated).

Planning for the pharmaceutical business as a whole (operation of pharmacies, turnover, profit, etc.) is pursued in accordance with a special system of indices the description of which is not one of the objectives of our work.

The forms for the public health plan for 1968, in accordance with the policy of the USSR Ministry of Health, consist of four sections and 26 Tables.

Table 1 -- Actual availability to the public of hospital beds, physician posts and physician staff.

Section I -- Network of public health institutions (Tables 2-16).

Table 2 -- Therapeutic and prophylactic institutions in urban and rural areas.

Tables 3-4 -- Specialized forms of therapeutic and prophylactic care in urban areas.

Table 5 -- Territorial district and shop district services to the urban population.

Table 6 -- Estimation of territorial and shop district services to the urban population.

Table 7 -- Specialized types of therapeutic and prophylactic care in rural areas.

Table 8 -- Stomatological care.

Table 9 -- Care referable to dental prosthetics.

Table 10 -- Emergency medical care stations.

Table 11 -- Creches, creche-nursery schools, child centers, mother and child centers (that are on the budget of public health bodies).

Table 12 -- Sanitary and epidemic-control institutions.

Table 13 -- Forensic medical expertise.

Table 14 -- Feldsher care.

Table 15 -- Sanatorium and resort institutions in the system of the USSR Ministry of Health.

Table 15a -- Ambulatory and polyclinic institutions at resorts.

Table 16 -- The pharmaceutical network.

Section II -- Posts and actual number of individuals employed in public health institutions (Tables 17-20).

Table 17 -- Posts and actual individuals employed in public health institutions.

Table 18 -- Expected availability of medical and pharmaceutical personnel.

Table 19 -- Estimates of number of personnel posts dealing with therapeutic and prophylactic services to the public.

Table 20 -- Standards for determining the number of employee posts in public health institutions.

Section III (Table 21) -- Placement of the newly deployed network of public health institutions in 1968.

Section IV -- Training, advanced training and specialization of personnel (Tables 22-26).

Table 22 -- Specialist training at VUZ.

Table 23 -- Specialist training in secondary medical schools.

Table 24 -- Training of scientific personnel, graduate students and clinical residents.

Table 25 -- Specialization and advanced training of physicians at institutes for such training and on faculties for advanced training at medical institutes and local bases.

Table 26 -- Training personnel with general qualifications and advancing the qualifications of paramedical personnel.

The forms and indices of the public health plan submitted in accordance with the policies of the planning bodies are approved by the USSR Gosplan and published in a pamphlet entitled "USSR Gosplan, Indices and Forms for Preparing a Draft Plan of Development of the USSR National Economy for 1966-1975. Public Education, Culture and Public Health," Moscow, 1964, pages 55-56.

We submit below the forms and indices of the public health plan and network of social security institutions of the USSR Gosplan for 1966-1970.

Public Health Indices in Summary Sections of the National Economic Plan

The indices given above for the special plan for public health development reflect the direction of development of public health in the country, the rate of development and level projected for the end of the planning period, internal proportions in development of different areas of medical care for the public. However, they do not yet determine the link between the public health plan and the overall national economic plan, implementation of this plan with regard to the material and technical base for personnel, and financing. For this, public health must find its place in the relevant indices of the summary sections of the national economic plan. We refer to the plan for capital investments, plan for labor and personnel training, the financing plan, and the plan for material and technical supplies.

The plan for capital investment includes the plan of capital construction and acceptance. The capital investment plan for the "public health" branch determines in essence the extent to which the hospital bed resources are to be expanded, and the extent to which the volume of therapeutic-prophylactic and sanitary-epidemiological care is to be increased, as well as the rates of technological progress in public health.

The plan establishes the overall volume of capital investments and acceptance of buildings under construction in cost and kind indices. Thus, the volume of construction and acceptance for hospitals is expressed in number of beds, and for polyclinics--in number of visits per day (traffic capacity). The financial expression of the plan is the estimated cost of construction and for equipment--it is the price of equipment and apparatus that is put to use. Acceptance [putting facilities or equipment into operation] may be planned in separate parts (separate additions to building complexes, construction of additional stories, etc.), however, the overall capital investment for each item is established for the entire construction period.

The capital investment plans are prepared according to itemized lists of facilities under construction. Depending on the size and importance of the buildings, the itemized lists may be approved by the Council of Ministers of USSR, or of Union republics, the USSR Ministry of Health or a Union republic ministry of health, kray and oblast ispolkoms, or by the government of an autonomous republic. The itemized lists are prepared in accordance with the following form:

Form No. 11 Submitted by the councils of ministers of Union republics, State committees
ministries and departments of the USSR and AUCCTU

<u>Indices</u>	<u>Unit of measurement</u>	<u>1960 (report)</u>	<u>1964 (report)</u>	<u>1965 (plan)</u>	<u>1966-1970 (draft plan for each year)</u>
Number of hospital beds: total including those for: mental patients patients with tuberculosis	thousands of beds " "				
Number of beds (with the excep- tion of those for mental patients) in: cities rural areas					
Physician posts (including dentist posts) -- total	units				
Number of pharmacies -- total those in rural areas					
Beds in sanatoriums, on day of maximum deployment--total* including year-round sanatoriums	thous. "				
Total beds in budgetary sanatoriums					
Total beds in year-round sanatoriums					
Total beds in trade-union sanatoriums					
Total beds year-round trade-union sanatoriums					

Form No. 11 Submitted by the councils of ministers of Union republics, State committees
ministries and departments of the USSR and AUCCTU (Continued)

<u>Indices</u>	<u>Unit of measurement</u>	<u>1960 (report)</u>	<u>1964 (report)</u>	<u>1965 (plan)</u>	<u>1966-1970 (draft plan for each year)</u>
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Of all beds in budgeted sanatoriums
those in sanatoriums for
patients with tuberculosis
year-round sanatoriums

thous.
"

Number of accommodations in rest
homes on day of maximum
deployment -- total**
including year-round

Of all accommodations in rest homes
those referable to trade-union
rest homes***
including year-round homes

Number of accommodations in boarding
homes on day of maximum use, total
including year-round homes

Of the total beds in boarding homes,
*number in homes at balneological
resorts
including year-round ones

Number of accommodations at tourist
bases and mountain-climbing camps

Accommodations in Pioneer camps

Form No. 11 Submitted by the councils of ministers of Union republics, State committees
ministries and departments of the USSR and AUCCTU (Continued)

<u>Indices</u>	<u>Unit of measurement</u>	<u>1966-1970</u>			
		<u>1960</u>	<u>1964</u>	<u>1965</u>	<u>(draft plan for each year)</u>
Beds in boarding homes for the dis- abled and aged total including those for disabled children	thous.				

* The number of sanatorium beds includes beds in sanatoriums of all types, except the
overnight sanatoriums (prophylactoriums).

** Of the total number of beds (accommodations) in sanatoriums, and boarding homes, distinction
is made of sanatoriums, rest and boarding homes located in another republic.

*** The number of accommodations in rest homes includes accommodations in all types of rest homes
except the one-day type.

1. Name and location of the construction project.
2. Year in which construction began and year in which it was completed.
3. Projected capability of the entire project.
4. Estimated cost of the project.
5. Volume of capital investments expressed monetarily expended before the planning period since the start of construction, including the year prior to the planning year, and when the capability is made operational.
6. Volume of capital investment for the planning year (monetary expression).
7. Capabilities to be made operational in the planning year.

The financing of construction can be implemented by the finance agencies only after it has been included in the plan of capital investments. Prior approval of the staff estimates is required to include construction in the plan and to finance it. One should bear in mind that there are ceilings with regard to the construction of medical institutions, and this is financed not only by public health bodies but also other agencies, including enterprises, kolkhozes, and occasionally using the combined funds of different sources. Public health bodies must take this into consideration in their plans; they should display initiative with regard to drawing on funds and rendering the necessary consultant assistance in the planning of construction of medical institutions.

A task of paramount importance is to increase the effectiveness of construction, reduce the time it requires and the extent of incomplete construction. "Concentration of capital investments on the most important sectors, elimination of the scattering of capital expenses, faster exploitation of enterprises under construction should become the mandatory prerequisite of planning and organization" (6). While there should be strict adherence to this requirement, at the same time, in the new construction plans one must provide for the necessary projects in progress to implement faster and more effective construction in the next period.

There are two main areas of planning with regard to labor in the national economic plan: planning of productivity of labor and planning of manpower resources. The plans define the assignments pertaining to growth of productivity of labor in different branches of production--industry, construction, transportation, agriculture. Since public health is not referable to the area of material production, this index of course is lacking in the public health plan. At the same time, as is the case for other branches, a most important task in public health planning is to provide effective and economic utilization of the labor of medical and other personnel dealing with medical services to the public.

There must be comprehensive improvement of the efficiency of medical personnel labor for further improvement of medical care for the working people; this can be achieved by proper organization of labor in medical institutions, rational distribution of medical personnel, use of personnel in accordance with their qualifications, alleviation of the labor of medical personnel and service personnel by means of rationalization of medical records and use of local mechanization in the exploitation of hospitals. All these measures would result in a significant economy of labor in public health and would improve the quality of medical care.

In the national economic plan for labor, the overall number of blue and white collar workers is specified, with distribution in different sectors of the economy, including public health. The planning of number of employees is very important in the public health plan: a) it determines the number of public health workers in accordance with the plan for public health development as well as proportionately to the overall number of workers in all sectors of the national economy and social development; b) it determines the wage fund for public health workers, which occupies a large share of the public health budget; c) it provides personnel for the volume of measures which are stipulated in the plan to develop the network of medical institutions and medical care for the public; and d) long-term planning of number of specialists with higher and secondary education serves as a substantiation for the plan of measures to train them.

The indices of number of workers in the area of material production are directly related to the indices of growth of production and productivity of labor. In the public health plan, the number of employees is determined by staff standards based on the standards of satisfying the medical care requirements and the set standards of work loads for different categories of medical and service personnel.

We should note several distinctions with regard to the indices concerning the number of public health workers in the labor plan: 1) the number of employees is not established according to the number of posts occupied; rather, according to the number of workers (actual individuals), as is the case in all other sectors of the national economy; 2) when determining the wage fund, as the mean wage we use the actual mean wage (mean earning) with due consideration of the fact that some individuals hold more than one job (without a so-called non-staff fund), rather than the mean salary rate. The plan for the wage fund will correspond to the same index on the budget, which is obtained by multiplying the mean wage rate by the number of positions occupied; and 3) the plan indicates the mean annual number of workers, rather than the number of workers as of the end of the planning period (year), since it is only on the basis of mean annual personnel that one can determine the size of the wage fund. However, the annual mean number of workers cannot be determined without taking into consideration the number of such workers at year end. The ratio between the mean annual number of workers and year end number of workers depends on the time at which the new network is deployed and the establishment of positions, as well as the time at which new personnel are hired.

The question of staff standards, as well as determination of requirements referable to physicians and paramedical personnel, and preparation of the balance of staff are discussed in the relevant chapters.

The most general section of the national economic plan is the summary finance plan. It constitutes the finance balance that relates all of the material and manpower resources of the country, reflecting their distribution in different areas of the national economy, in different Union republics and economic regions of the country. The summary finance plan covers not only income and expenses on the State budget, but also all monetary resources of the national economy, including the funds of industrial enterprises, funds of cooperative organizations and kolkhozes, the funds of trade unions and other social organizations. The summary finance plan does not have to be approved by the government, and it serves as an economic estimation document. The State budget constitutes the core of the summary finance plan. As a consolidation of State income and expenses, the State budget has to be approved by a session of the USSR Supreme Council, and in the Union republics it is approved by sessions of the supreme councils of Union republics, after which it becomes a law.

In public health financing, funds referable to a State budget occupy the principal place, however, considerable funds are also expended from other sources. For example, in 1965, 8.4 billion rubles from all sources were expended on public health and physical culture, including 6.7 billion rubles, or 80%, of the national budget (7).

The public health budget on the Union, republic and local levels is based on the plan. It provides for financing of the planned growth of the network of medical institutions, volume of capital investments, wage fund, etc. However, all this does not happen automatically. The finance bodies participate actively in preparing the plan and can influence the formation of its indices. The finance bodies check proper and effective use of finances and thereby also perform a supervisory [checking] function with regard to implementation of the plan. Using statistics and accounting records, they are able to determine whether the plan has not been fulfilled with reference to specific items; they can analyze the causes of such occurrences and they can indicate how fuller use can be made of internal resources; they can also suggest rational allocations of funds.

When planning public health expenses, the finance bodies proceed from the plan they have adopted for deploying the network. The indices of this plan coincide with the indices of the plan that is prepared by the planning bodies, but they may also present some distinctions that are related to the need to provide more details with regard to sources of financing or finance standards. The finance plan refers to all types of medical institutions that are on a budget, whereas the plan that is prepared by the planning bodies may reflect only the principal types of institutions.

The financing of capital investments and wage fund is in strict accordance with the ceilings established by the plan. When preparing the overall finance plan for public health, the finance agencies proceed

from the overall size of the planned budget and the proportions indicated in it. Financing of a new network is performed by calculating the annual mean with due consideration of quarterly target dates for deployment of such a network.

In order to determine the total expenses for public health in the budget, one proceeds from the established financial and material standards; the latter, in turn, are given a monetary expression by means of appropriate conversion.

The consolidated indices of expenses are established in finance planning practice, for example, the expense per hospital bed, per physician post, per feldsher-midwife center, etc.

All of the expenses on the State budget are classified according to sections dealing with specific areas of public health and types of institutions, and items that indicate direction of expenses referable to each section (wages, patient nutrition, drugs, administrative expenses, etc.). There are standard names for items within each section.

The objectives of our book did not include a detailed description of the methods involved in planning public health expenses. Those who wish to learn more are referred to the "Planning and Financing of Public Health Expenses" (Moscow, 1965) by V. P. Solov'yev and "Planning of Public Health Expenses" (Moscow, 1967) by N. V. Chaykovskaya and R. V. Grikurova, published by the Finansy Publishing House.

Organization of Work Dealing with Preparation and Implementation of a Public Health Plan

Development of the national economic plan is an enormous collective job requiring the involvement of many State institutions, scientific research institutes, scientists, engineers and economists, industrial enterprises and kolkhozes and broad masses of working people. There must be very good organization and system in preparing the plan, its different phases must be carefully thought out to provide unity in the overall national economic plan, optimum effectiveness thereof, balanced combination of material, personnel and financial resources, proportionate development of different branches of the national economy, and proper territorial distribution of the national economy. The main organizational principle involved in preparing a plan is the Lenin principle of democratic centralism. It is stated in the CPSU program that: "The building of communism implies comprehensive development of the democratic bases of management with strengthening and improvement of centralized State management of the national economy. Administrative independents and the rights of local bodies and enterprises will continue to be broadened within the framework of a single national economic plan; plans and suggestions originating from subordinate levels, starting with enterprises, should play an increasing part in planning" (8).

Even before beginning work dealing directly with the plan, considerable scientific economic work is conducted in the planning bodies and primarily in the USSR Gosplan dealing with determination of the main

proportions in the national economic plan, preliminary development of the most important balances, directions of development of the national economy and social development as dictated by scientific technological process and the increasing public demands, searching for reserves with regard to growth of production and increasing the productivity of labor, and establishing the initial level. With each year, the significance of this phase of work is increasing, since it determines implementation of the most important stipulations of the party as formulated in the CPSU program and decisions of the 23rd Congress: to increase the scientific level of national economic planning. The level of scientific economic work is also rising constantly in the Union republic gosplans, and this helps coordinate the territorial and sectorial plans.

The USSR State Planning Committee (USSR Gosplan) which has been the Union and republic body since 1963, forwards to the gosplans of Union republics, as well as ministries and agencies, completed methodological instructions on preparation of plans, indices and forms used in the plan, as well as assignments dealing with the most important items in the national economic plan.

The sequence and target dates for working out the national economic plan are established by decisions of the government.

The decisive stage of work dealing with preparation of the plan for development of the national economy is to work out the directives and main directions of the plan. They are approved by directive bodies and they constitute the most important political documents. The directives dealing with the preparation of long-term national economic plans are approved by congresses of the CPSU. For example, the directives dealing with preparation of the first 5-year plan of development of the national economy were approved by the 15th Party Congress in 1927. The 19th Party Congress approved the directives dealing with the 5-year plan of development of the national economy of the USSR for 1951-1955. Directives dealing with the sixth 5-year plan for development of the USSR national economy in 1956-1960 were approved by the 20th CPSU Congress in 1956. In January 1959, an extraordinary, 21st Congress of the CPSU was convoked to consider the control figures for development of the USSR national economy in 1959-1965. Finally, the directives dealing with the 5-year plan of development of the USSR economy for 1966-1970 were approved by the 23rd CPSU Congress in 1966.

In addition to these decisions that define the political and economic tasks in the plan for development of the overall USSR national economy, one should, when preparing national economic plans proceed from the decisions of the Party and government dealing with the development of different sectors of industry and agriculture, cultural and municipal services to the public, development of Union republics and different economic regions.

On the basis of these directives issued by the governments of Union republics, the ministries and agencies work out and submit to

subordinate organizations instructions on preparation of the plan in their own territory or in their own sector.

Public health is almost entirely referable to republic-level and local management. The vast majority of hospital beds, polyclinics and dispensaries are under the jurisdiction of oblast, municipal and rayon ispolkoms of workers' deputies. This explains the many steps involved in organizing work on and approval of public health development plans. In republics that are subdivided into oblasts there are four such steps: the rayon (city), oblast (autonomous republic, kray), Union republic, and USSR. In the republics that are not subdivided into oblasts, there are three such steps: rayon (city), Union republic, USSR.

At each of these levels, there are three systems of bodies involved in preparing the public health plan: the administrative bodies of Soviet power (councils of ministers, ispolkoms of councils of workers' deputies), planning bodies (the gosplans of Union and autonomous republics, oblasts, municipal and rayon planning commissions), and republic-level and local public health bodies.

Preparation of the public health plan, on the basis of the directives and instructions that are received, begins at the rayon level. The rayon ispolkoms receive instructions from oblast ispolkoms about the assignments for the planning period given to the rayon. These instructions are worked out in accordance with the directives of the government of the Union republic pertaining to the main lines of development of the national economy in that republic and in different oblasts. On this basis a draft plan is prepared for development of local economy and cultural construction in the rayon. The rayon (municipal, in cities under oblast jurisdiction) planning commission organizes and implements this work. The public health department (rayon chief physician), as well as other departments of the ispolkom submit draft plans and substantiation thereof in their sector to the ispolkom and to the rayon planning commission. The planning commission submits to the ispolkom its comments dealing with all sectorial draft plans, including the plan for public health, and the summary plan of development of the local economy and social development in the rayon.

The draft of the summary plan is reviewed by the rayon ispolkom, and after approval thereof it is submitted to the oblast ispolkom and the oblast planning commission, or to the council of ministers and gosplan of a Union republic that is not broken down into oblasts. At the same time, the rayon health department (rayon chief physician), after coordination with the rayon planning commission, submits the draft plan for public health to the oblast health department.

On the rayon level, public health planning is an organic element of overall planning of development of the rayon, with due consideration not only of the economy under local jurisdiction, but also development of industry and agriculture, as well as cultural and municipal institutions in the rayon that are not under rayon (oblast, republic) jurisdiction. Here, of main significance is the projected

settlement of the rayon (enlargement of populated areas and development of new settlements), development of transportation [railroad] in the rayon, economic propensity of the public to move to specific centers, etc.

The distinction of public health planning on the rayon level is that the planned tasks are established with reference to each object (hospital, polyclinic, maternity home, dispensary, feldsher-midwife center). Thus, the plan is directive [address] and operational in nature. The rayon workers must take into consideration the standards for polyclinic and hospital care, the norms of hospital bed occupancy and physician work loads, and the established staff standards. Any deviation from the standard should be analyzed; determination should be made whether it is related to the distinctions of morbidity of the public, relocation of medical institutions, shortage of personnel or improper use thereof, or improper organization of the therapeutic process. Utilization of internal resources, the most rational and economic utilization of physician and paramedical staffs, as well as of hospital bed resources, constitute the most important task of public health planning on the rayon level.

Planning of the development of a system of medical institutions of which the indices are reflected in the national economic plan, on the rayon level, is directly linked with the planning of practical measures that are implemented by the group of workers in the rayon's medical institutions, directed toward improving the quality of medical care for the people. The preparation of such operational plans, that are to be approved by Party and soviet bodies of the rayon, is of great mobilizing significance and helps fulfill the tasks put to the public health service of the rayon.

As an example of such a plan, we can mention the plan for operating public health institutions in Mlynovskiy Rayon, Rovenskaya Oblast, published in the article of the rayon's chief physician, Ye. V. Khodakovskiy (SOVETSKOYE ZDRAVOOKHRANENIYE [Soviet Public Health], No. 5, 1965).

The indices of the plan for public health development in the rayon, as we have already indicated above, do not differ from the indices of a plan for the republic or oblast. Some of them, the most important ones, are contained in the plan for development of public health on the oblast level, and they are prepared on the rayon level, in coordination with each administrative rayon. The magnitude of other indices is determined directly by rayon organizations, so that it is a component of the summary plan for the rayon.

The procedure for preparing a plan on the oblast level is essentially the same as for rayon level plan. The oblast health department submits a draft plan for public health care to the oblast ispolkom and to the oblast planning commission. The latter submits to the oblast ispolkom the conclusion pertaining to the plan submitted by the health department and the summary plan for development of the oblast's national economy with appropriate suggestions dealing with the public health plan. After approval by the oblast ispolkom, the plan for development

of the national economy and social development in the oblast is submitted to the Union republic gosplan and council of ministers. Concurrently, the oblast health department submits a plan for public health development to the Union republic's ministry of health. The same procedure is followed in the development and submittal of public health plans on the kray and autonomous republic levels.

To provide for composite planning on the oblast, kray, and autonomous republic levels, all enterprises--regardless of their subordination--that are located in this territory, report to oblast and kray planning commissions, as well as the autonomous republic gosplan, the proposed indices of development of cultural, educational, and public health institutions, as well as of housing and municipal affairs belonging to the agencies. The suggestions resulting from a review of such oblast (or kray) plans are reported by the autonomous republic gosplans to the Union republic gosplan.

The procedure for working out the plans on the Union republic level is essentially the same as on the oblast, kray or autonomous republic levels.

A decree issued by the CC CPSU and USSR Council of Ministers dated 4 October 1965, "Relegation of Additional Decision-Making to Union Republic Councils of Ministers with Regard to Problems of Economic and Social development," (9) broadens the rights of Union republics with regard to management of the sectors of the national economy that had remained under their management after elimination of sovnarkhozes, with regard to planning of industry, capital construction, finances and labor. The Union republic councils of ministers were given the right to use the republic budget to provide for additional hospital beds over and above those set forth in the USSR national economic plan. The All-Union and Union republic ministries and agencies coordinate with the Union republic councils of ministers the plan for construction of municipal and cultural projects, including those pertaining to public health, with reference to enterprises and construction in progress outside of the cities. The Union republics work out the plans for capital investments for the construction of hospitals, polyclinics, dispensaries and pharmacies.

After a careful inspection of the plans submitted to the USSR Council of Ministers, the USSR Gosplan submits its conclusions with reference to these plans, and it also submits a summary draft of the national economic plan. After approval of the USSR Council of Ministers, it is submitted for approval to the USSR Supreme Council, and after this it becomes a law.

The approved plan is forwarded successively to subordinate levels (Union republic, oblast, rayon) where, after making adjustments in accordance with changes that were made in the original draft plan and greater details of indices thereof, it is approved by a session of the supreme council of the Union or autonomous republic, kray, oblast, municipal or rayon council of workers' deputies.

The long-term plans are prepared with a breakdown for different years of the planning period. This provides much stability and specificity to the plans. When preparing annual plans, these outlines are subject to verification--the necessary corrections can be made in the case of a change in the initial base, changes in rate of development of the economy and different sectors thereof, emergency of new problems in the course of fulfilling the plan, etc.

Distinction must be made between the sectorial, departmental and territorial levels of the plan. As related to public health, the sectorial plan includes plans for development and appropriate back-up (with personnel, finances, capital investments) of therapeutic-prophylactic sanitary-epidemic institutions, regardless of departmental subordination. Although most medical institutions are in the system of the USSR Ministry of Health, there is a considerable network of institutions that are under the jurisdiction of other departments (Ministry of Railroads, AUCCTU, and others). The distribution of the plan according to sectors of the national economy determines the proportionality of different elements thereof, and this is done at early stages of preparing the plan, when it is not yet directive [address] in nature.

At the same time, there are departments in the public health system that are reflected in the plan in other sectorial plans. For example, scientific research institutes are listed in the "science" sectors; industrial enterprises that are under the jurisdiction of public health agencies are listed in the "industry" sector; sovkhozes that raise medicinal plants are listed in the "agricultural" sector.

The system of public health bodies is referable to the sector that combines the entire system of bodies of state and economic management. All of these sectorial plans referable to institutions and organizations in the system of the USSR Ministry of Health constitute the departmental plan of the USSR Ministry of Health and they determine the sum of tasks involved for fulfillment of different parts of the national economic plan, for which this ministry is responsible. This is an address, directive plan for the USSR Ministry of Health.

When preparing a plan on the departmental level in the USSR Ministry of Health, separate plans are made for institutions under Union jurisdictions and Union republic systems; on the level of the Union republic ministries of health--this is done for institutions that are under republic subordination and for the system of kray (oblast) health departments, ministries of health of autonomous republics; in kray or oblast health departments, plans are made for institutions under kray, oblast, and republic (autonomous republic) jurisdiction and under rayon jurisdiction.

In the national economic plan, much significance is attributed to the correct combination of territorial and sectorial planning. The most important task involved in preparing a public health plan on the territorial level is to locate the network of medical institutions in accordance with the plan of territorial location of the

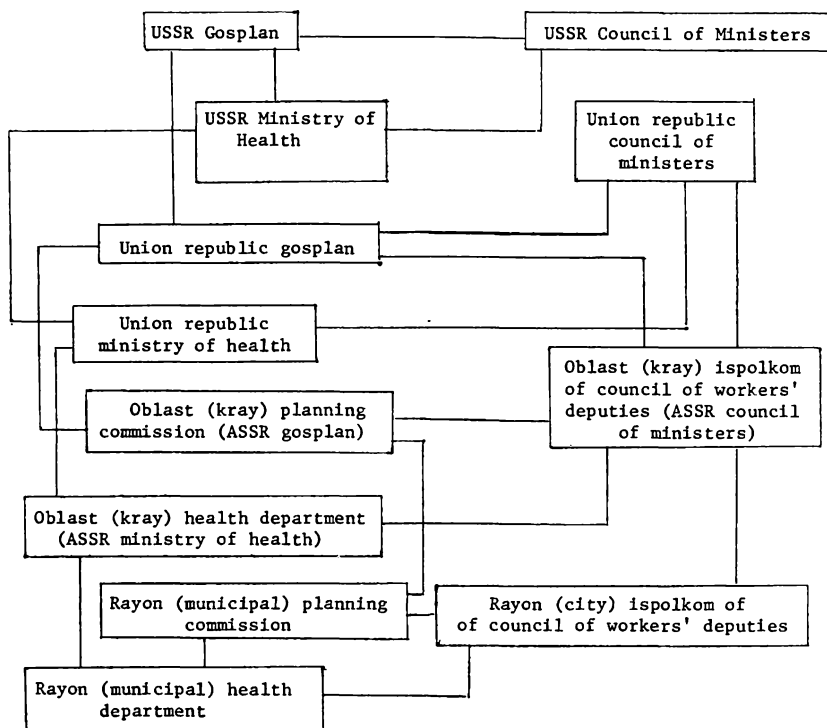


Chart of development of public health plan in the USSR

entire national economy, with due consideration of development of the leading branches of industry (new economic rayons, projected development of rural and urban populated areas).

FOOTNOTES REFERRED TO IN CHAPTER 2

1. STATISTICHESKIY SLOVAR' (Statistical Dictionary), Moscow, Vol. 1, p. 377, 1963.
2. POLITICHESKAYA EKONOMIYA, Textbook, 4th edition, Moscow, p. 641, 1962.
3. MATERIALY XXII S"YEZDA KPSS, Moscow, p. 171, 1961.
4. Ibid, p. 174.
5. Ibid, p. 180.
6. "Program of the CPSU," Ibid, p. 384.
7. NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, p. 783, 1966.
8. MATERIALY XXII S"YEZDA KPSS, Moscow, p. 385, 1961.
9. SP SSSR (Collection of Government Regulations and Decrees of the USSR), No. 19-20, p. 154, 1965.

Chapter 3

METHODS OF ANALYZING STATISTICAL DATA IN PREPARING A PUBLIC HEALTH PLAN

National economic planning is based on data referable to State statistics. Being an independent social science with the most diversified application in the practice of building of a communist society, statistics deal with the quantitative aspect of social phenomena as directly related to their qualitative content. Soviet statistics is exceptionally important to scientific planning.

An individual dealing with public health planning must be proficient in the methods of analyzing data pertaining to demographic statistics, health and health care statistics, since substantiation of each index in the public health plan of a republic or oblast such as, for example, the number of hospital beds or physician posts, requires complicated calculations, as well as profound and comprehensive knowledge of the actual situation. A planning worker must know how to use the summary reports of public health agencies, the reports of different institutions, the data of contemporaneous censuses, the results of scientific statistical studies; he should know how to use the records of medical institutions, and he should also be informed with regard to statistics of allied sectors of the national economy.

Analysis of Demographic Statistical Data

All of the indices in the plan of providing the public with medical care are measured by the relation of their values to the population size and different population groups.

The most general demographic index is population size and dynamics. The Soviet Union is characterized by a high rate of population growth, low mortality rate and relatively high birth date. Thus, in 1965, population growth in the USSR constituted 11.1 per 1,000, with a birth rate of 18.4 and death rate of 7.3 per 1,000 population. In 1964, the death rate was 6.9 per 1,000. The slight rise of death rate in 1965 was related to an influenza epidemic in February and March of 1965 (1). In 1913, a population growth of 16.8 per 1,000 in prerevolutionary Russia was observed with a birth rate of 47.0 and death rate of 30.2 per 1,000 population. The population of the USSR (within its contemporary frontiers) increased from 194.1 million as of 1 January 1940 to 208.8 million according to the census of 15 January 1959, i.e., it increased by 14.7 million people, and this in spite of the fact that 20 million were lost in the USSR during the Great Patriotic War. The size of the USSR population increased to 231.9 million between 1958 and 1965 (as of 1 January 1966), or by 23.1 million, which constitutes an annual increment of over 3 million people (2). Population growth did not proceed at the same rate in different republics, as can be seen in Table 1.

Table 1

POPULATION OF UNION REPUBLICS (MILLIONS OF PEOPLE)*

Union republics	1939 r.	1959 r.	1965 r.	1965 r.	1965 r.
			Ha 1,1 1966 r.)	B % K 1939 r.	B % K 1959 r.
USSR	194.1	208.8	231.9	119.5	111.1
RSFSR	110.1	117.5	126.6	115.1	107.7
Ukrainian SSR	41.3	41.9	45.5	110.2	108.6
Belorussian SSR	9.0	8.1	8.7	96.7	107.4
Uzbek SSR	6.6	8.3	10.6	160.6	127.7
Kazakh SSR	6.1	9.2	12.1	198.4	131.5
Georgian SSR	3.6	4.0	4.5	125.0	112.5
Azerbaijdzhan SSR	3.3	3.7	4.7	142.4	127.0
Lithuanian SSR	2.9	2.7	3.0	103.5	111.1
Moldavian SSR	2.5	2.9	3.4	136.0	117.2
Latvian SSR	1.9	2.1	2.3	121.1	109.5
Kirgiz SSR	1.5	2.1	2.7	180.0	128.6
Tadzhik SSR	1.5	2.0	2.6	173.3	130.0
Armenian SSR	1.3	1.8	2.2	169.2	122.2
Turkmen SSR	1.3	1.5	1.9	146.2	126.7
Estonian SSR	1.1	1.2	1.3	118.2	108.3

*NARODNOYE KHOZYAYSTVO SSSR V 1965, G, Moscow, p. 9, 1966.

In the 26 years from 1939 to 1965, there was a 19.5% increase in total population of the USSR. At the same time, the population of Kazakh SSR almost doubled, there was a 63.3% increase in the central Asian republics, with only a 10.2% increase in the population of Ukrainian SSR and an 11.9% increase in the Baltic republics. In 1965, the population of Belorussian SSR had not yet reached the 1939 level.

There was a 15.1% increase in the population of the RSFSR between 1939 and 1965, whereas the population of the Volgo-Vyatskiy and Central Chernozem regions diminished; there was also a decrease in the population

of some parts of the north-western and central regions. There was a 44.5% increase in the population of the Urals, Siberia and Far East.

These differences in rate of population growth in different Union republics and regions of our country should be attributed to three causes: 1) different levels of natural population growth related primarily to differences in birth rate; 2) consequences of the war as a result of which there was a decrease in population of Belorussian SSR and some oblasts of the RSFSR and Ukrainian SSR; and 3) changes in location of industry and agriculture in the country and related measures pertaining to organized collection of manpower, training and involvement of specialists, etc.

In most cases, these factors have a combined influence. For example, the fact that the population of Kazakh SSR almost doubled could be attributed, to some extent, to the high birth rate and evacuation of people from occupied areas during the war. However, of decisive significance was the arrival of people from other republics in connection with the intensive development of industry in Kazakhstan and opening up of virgin land.

Knowledge about overall population size, dynamics thereof and distribution in a territory helps determine whether there is an adequate network of medical institutions in different republics, oblasts and economic regions; it also helps provide (in the long-term plans) for measures directed toward the systematic improvement of the availability of medical care, toward overcoming the lag in medical services prevailing in some parts of the country, and toward predominant servicing of the most important industrial regions.' Just how this was accomplished can be seen in Table 2, which shows the rate of development of public health in different Union republics in 1958-1965. This table indicates that the following changes occurred with regard to supplying the inhabitants of Union republics with hospital beds and physicians:

- 1) In the Soviet Union as a whole and in all of the Union republics the increase in number of hospital beds and physicians was greater than population growth, so that in all areas the index of availability of medical care rose (number of hospital beds and physicians per 10,000 population).

- 2) The network of public health care and medical personnel grew at the fastest rate in the Union republics that previously had shown a lag from the mean Union level (Belorussian SSR, Kazakh SSR, Uzbek SSR, Kirgiz SSR, Tadzhik SSR, Moldavian SSR). As a result, as compared to 1958, in 1965 there were fewer differences with regard to level of availability of medical care in different Union republics.

These changes were the result of proper public health planning, in accordance with the location of the national economy and national policies of the Communist Party and Soviet government.

Of great significance to public health planning are statistical data dealing with the distribution of the population in urban and rural settlements. These data help to correctly plan development of the

Table 2

AVAILABILITY OF HOSPITAL BEDS AND PHYSICIANS TO THE INHABITANTS
OF UNION REPUBLICS IN 1958 AND 1965*

Union republics	1958 r.		1965 r.		1965 r. B % K 1958 r.		1958 r.		1965 r.	
	Number of beds in thousands									
					Beds		physicians		beds	
RSFSR	889.8	227.1	1,241.1	315.5	139.4	139.0	75.7	19.3	98.1	24.9
Ukrainian SSR	301.4	77.3	428.2	110.6	142.7	143.1	72.0	18.5	94.1	24.3
Belorussian SSR	48.9	11.5	80.0	18.8	163.3	163.5	60.8	14.3	92.6	21.8
Uzbek SSR	48.9	10.5	97.5	17.9	199.0	170.5	60.3	12.9	92.2	16.9
Kazakh SSR	72.6	12.2	122.1	22.4	168.2	183.6	78.0	13.2	100.7	18.4
Georgian SSR	27.7	13.1	38.2	15.8	138.0	120.6	68.5	32.3	84.0	34.6
Azerbaijdzhan SSR	24.2	8.6	39.8	11.0	164.5	127.9	65.5	23.4	85.4	23.7
Lithuanian SSR	19.7	4.4	26.6	6.4	135.0	145.5	72.9	16.1	89.0	21.5
Moldavian SSR	19.3	3.7	30.1	6.0	156.5	162.2	66.8	12.9	89.3	17.9
Latvian SSR	21.0	5.1	26.2	7.1	124.8	139.2	100.5	24.4	115.9	31.4
Kirgiz SSR	12.9	2.9	23.8	5.0	184.5	172.4	62.3	13.9	89.8	18.8
Tadzhik SSR	11.4	2.3	22.4	3.8	196.5	165.2	57.5	11.6	87.0	14.9
Armenian SSR	11.6	4.2	17.8	6.0	153.4	142.9	65.7	23.6	81.0	27.2
Turkmen SSR	12.1	2.7	17.4	4.1	143.8	151.9	79.7	18.0	90.8	21.2
Estonian SSR	11.0	2.7	14.3	3.8	130.0	140.7	91.9	22.8	111.2	29.8
Total for USSR	1,532.5	388.3	2,225.5	554.2	145.2	142.8	73.4	18.6	96.0	23.9

*NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, pp. 748-749, 1966. ZDRAVOOKHRANENIYE V SSSR (Health Care in the USSR), statistical collection, Moscow, pp. 81-84, 1935, 1960.

network of urban and rural medical institutions, and to define the optimum rate of equalizing the levels of medical care rendered to the urban and rural population.

The urban population of the USSR is growing rapidly, whereas the share of rural population is dropping, and this also applies to the absolute expression since 1939. This is apparent from the data in Table 3 (the figures are given for the present boundaries of the USSR).

Since 1961, the urban population has been larger in size than the rural population.

Table 3
SIZE OF URBAN AND RURAL POPULATION IN THE USSR*

Years	Millions			% of total		
	all	urb.	rur.	all	urb.	rur.
1913	159.2	28.5	130.7	100.0	18.0	82.0
1939	194.1	63.1	131.0	100.0	32.0	68.0
1959						
(as of 15 Jan.)	208.8	100.0	108.8	100.0	48.0	52.0
1965	231.9	124.8	107.1	100.0	53.8	46.2

*NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, pp. 10-11, 1966.

The proportions between the urban and rural population in different Union republics as of 1 January 1966 are expressed by the following figures (Table 4).

In the RSFSR and Ukrainian SSR, there is a different proportion between urban and rural population in different oblasts, and this is related primarily to the extent of industrial development of such oblasts. For example, while the mean percentage of urban population in RSFSR is 59, in Kemerovskaya Oblast the share of urban population constitutes 81%, it is 67% in Permskaya, 80% in Sverdlovskaya, 78% in Chelyabinskaya, and 67% in Tul'skaya oblasts. At the same time, the figures are 38% for Stavropol'skiy Kray, 28% for Belgorodskaya Oblast, 27% for Kurskaya Oblast, 29% for Mordovian ASSR and 31% for Chuvash ASSR.

In the Ukraine (Donetskaya Oblast) the urban population constitutes 88%; the figures are 85% in Luganskaya Oblast, only 24% in Khmel'nitskaya Oblast, 33% in Cherkasskaya, 29% in Zakarpat'skaya, 31% in Zhitomir'skaya, and 32% each for Chernovitskaya and Chernigovskaya oblasts (3).

Table 4

SIZE OF URBAN AND RURAL POPULATION IN DIFFERENT
UNION REPUBLICS AS OF 1 JANUARY 1966*

Union republics	Thousands of people			% of all	
	Total popul.	urban	rural	urban	rural
RSFSR	126,561	75,069	51,492	59	41
Ukrainian SSR	45,516	23,715	21,801	52	48
Belorussian SSR	8,693	3,403	5,230	39	61
Uzbek SSR	10,581	3,732	6,849	35	65
Kazakh SSR	12,129	5,786	6,343	48	52
Georgian SSR	4,548	2,140	2,408	47	53
Azerbaydzhan SSR	4,660	2,328	2,332	50	50
Lithuanian SSR	2,986	1,334	1,652	45	55
Moldavian SSR	3,368	953	2,415	28	72
Latvian SSR	2,262	1,400	862	62	38
Kirgiz SSR	2,652	1,020	1,632	38	62
Tadzhik SSR	2,579	915	1,664	35	65
Armenian SSR	2,194	1,210	984	55	45
Turkmen SSR	1,914	940	974	49	51
Estonian SSR	1,285	804	481	63	37
USSR	231,868	124,749	107,119	54	46

*NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, pp. 10-11, 1966.

* * * * *

To assess the structure of the urban population it is important to know the distribution of cities and urban settlements and population thereof as related to the inhabitants of individual urban settlements. For example, in 1965, the distribution was expressed in the following figures (Table 5).

Table 5

DISTRIBUTION OF URBAN SETTLEMENTS ACCORDING TO POPULATION SIZE*

	Urban settlement		Their population	
	Abs.	%	mil-lions	%
Total urban settlements	5,250	100	124.8	100
Those with under 3,000 popul.	760	14.5	1.4	1.1
From 3 to 5 thousand	962	18.3	3.8	3.0
From 5 to 10 thousand	1,622	30.9	11.4	9.1
From 10 to 20 thousand	972	18.5	13.4	10.7
From 20 to 50 thousand	559	10.6	17.2	13.8
From 50 to 100 thousand	183	3.5	12.8	10.3
From 100 to 500 thousand	162	3.1	32.7	26.2
500 thousand or more	30	0.6	32.1	25.8

*NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, p. 40, 1966.

Table 5 shows that 52% of all the urban population is concentrated in 192 large cities making up 3.7% of all urban settlements, whereas only 23.9% of all the urban population lives in 4,316 urban settlements with a population of up to 20,000, constituting 82.2% of all urban settlements. Among these settlements are 3,367 towns of the urban type with a population of 19.9 million. In all there are 3,418 such settlements with a population of 21.3 million.

The intermediate group consists of 742 towns with a population of 20,000 to 100,000 making up 14.1% of all urban settlements and referable to 24.1% of all urban residents. Among these towns there are quite a few new ones with rapidly developing industry. For example, at the time of the 1959 census the following cities had not yet existed: Bratsk, Novokuybyshevsk, Volzhskiy, Oktyabr'skiy, Al'met'yevsk, Almalyk, and others. At the start of 1965, a population of 100,000 was reached in Bratsk, 91,000 in Novokuybyshevsk, 91,000 in Volzhskiy, and 75,000 in Oktyabr'skiy. However, a significant part of this group consists of cities under oblast and rayon jurisdiction in old economic regions, the economic development of which was not given proper attention until recently. It is stated in the directives of the 23rd CPSU Congress with regard to the 5-year plan for development of the USSR national economy in 1966-1970: "in order to improve utilization of manpower resources and more uniform development of industry, new enterprises should be constructed primarily in the middle-sized and small

Table 6

DISTRIBUTION OF URBAN SETTLEMENTS IN THE USSR ACCORDING TO THEIR ADMINISTRATIVE
AND TERRITORIAL SIGNIFICANCE, AS OF 1 JANUARY 1965

Union republics	total urban settlements	cities	Including			urban-type settlements	total urban settl. under rayon jurisd.	urban settlements that are rural rayon centers	Including	
			under republic, kray, oblast, okrug jurisdic.	under rayon jurisdiction	towns under republ., kray & oblast jurisd.				under rayon jurisdiction	
RSFSR	2,674	917	499	418	1,757	2,175	1,086	308	778	
Ukrainian SSR	1,211	365	113	252	846	1,098	376	62	314	
Belorussian SSR	199	74	33	41	125	166	100	31	69	
Uzbek SSR	115	37	30	7	78	85	35	--	35	
Kazakh SSR	222	59	39	20	163	183	57	10	47	
Georgian SSR	98	44	11	33	54	87	59	2	57	
Azerbaydzhani SSR	160	45	9	36	115	151	59	4	55	
Lithuanian SSR	114	89	8	81	25	106	41	3	38	
Moldavian SSR	42	19	8	11	23	34	20	5	15	
Latvian SSR	88	54	8	46	34	80	21	3	18	
Kirgiz SSR	46	15	13	2	31	33	25	4	21	
Tadzhik SSR	47	15	11	4	32	36	24	6	18	
Armenian SSR	50	23	9	14	27	41	27	5	22	
Turkmen SSR	78	14	8	6	64	70	34	3	31	
Estonian SSR	57	33	6	27	24	51	12	3	9	
Overall, USSR	5,201	1,803	804	999	3,398	4,397	1,976	449	1,527	

towns with due consideration of the need to make use of male and female labor" (4). This instruction is also very important to public health planning.

The distribution of the population according to number of residents must be assessed along with the administrative territorial significance of urban settlements. Many of them are oblast and rayon centers; they have their own medical institutions that service not only the residents of a particular city but also the population of the entire oblast and rayon. In the case of a socialist economy, oblast and rayon centers are not only important administratively, they are also economic and cultural centers in their area.

From these positions, all urban settlements can be divided into two main groups: 1) cities under republic, kray, oblast and okrug jurisdiction. A significant number of towns under republic, kray and oblast jurisdiction are also rural rayon centers; 2) cities and towns of the urban type under rayon jurisdiction. These settlements include most urban settlements that are rayon centers, as well as urban settlements located in the rayon outside rayon centers.

On the basis of the statistical data published in "The National Economy of the USSR in 1964," and according to the data in the reference book, "Administrative Territorial Division of the USSR in 1965" (Moscow, 1966), we calculated the distribution of urban settlements in these groups within the Union republics as of 1 January 1965. These calculations are illustrated in Table 6.

On the basis of Table 6, we can derive the following conclusions which are significant to public health planning.

1) A total of 804 towns under republic, kray and oblast jurisdiction is referable to the group of the largest urban settlements. They include all cities with a population of over 50,000 and most cities with a population of 20,000 to 50,000. Only a few of the centers of autonomous oblasts and national okrugs have a smaller population. Of this group, 449 cities (over half) are concurrently the centers of rural rayons, including quite a few republic, kray and oblast centers. The following cities have their own rural rayons: Bryansk, Vologda, Kuybyshev, Irkutsk and others. The correlations are different in different republics and oblasts. For example, in Belorussian SSR, 31 out of 33 cities under republic and oblast jurisdiction are also rural rayon centers, including the capital of Belorussian SSR, Minsk. Conversely, in Uzbek SSR, none of the 30 cities under republic and oblast jurisdiction is a rural rayon center.

Within the rayons there are 4,397 urban settlements (cities and towns of the type with a population mainly of up to 20,000); 1,976 of them are rayon centers, and this constitutes 45% of all such settlements. At the same time, many of these settlements are outside rayon centers, particularly in industrial oblasts. For example, in Sverdlovskaya Oblast, 98 out of 104 urban settlements under rayon jurisdiction are outside rayon centers and this applies to 51 out of 62 in Luganskaya Oblast.

As for the distribution of urban residents in settlements with different administrative importance, we do not have more recent published data at hand.

According to the annual, "The USSR National Economy in 1961," in 1959 (according to the census), the overall population of administrative territorial regions constituted 133.4 million as of 1 January 1962, including 108.8 million rural population and 24.6 million urban. Thus, the share of urban population in these regions constitutes 18.9%. There is a higher percentage of urban population in different regions of Turkmenskaya, Latvian, Ukrainian, and Azerbaydzhan SSR. It would appear that in the period that has elapsed the size of the population in urban settlements under rayon jurisdiction and its share in the overall rayon population have increased somewhat.

All of these data are rather important to public health planning. They indicate not only that there is an increase in the size and share of urban population in the country, but also that the role of urban settlements in the economic and cultural life of the rural population is increasing, that closer and closer ties are being established between towns and villages, that there is a consistent movement forward toward fulfilling the task of eliminating the essential differences between urban and rural areas as set forth in the CPSU program.

As for public health and planning thereof, as we shall see from the data submitted above, there is a need to pursue composite planning of medical care with due consideration of urban and rural requirements.

* * * * *

Analysis of demographic indices of the rural population should be made with due consideration of the area where this population resides as well as the territorial administrative division.

The main index expressing the relationship between inhabitants and territory is population density, or population size per square kilometer. The population density of the USSR constituted 10.4 per square km in 1965. In different Union republics the population density ranges from 99.9 per square km in Moldavian SSR and 75.7 in Ukrainian SSR to 4.5 in Kazakh SSR and 3.9 in Turkmen SSR. However, this index does not have enough practical significance for public health planning.

To make proper use of the index of population density, some adjustments should be made both in determining the population size and the size of territories.

When estimating population density one can take into consideration the following: a) the overall population, b) only the rural population, and c) rayon population (excluding the inhabitants of cities under republic, kray and oblast jurisdiction).

If we exclude the population of cities and towns under republic, oblast and kray jurisdiction, there will be a 40% decrease in population density, and approximately a 50% decrease in some republics such as, for example, Uzbek, Kazakh and Estonian SSR.

The density of the rural population alone, without considering the residents of urban settlements under rayon jurisdiction, will be smaller than the density of the entire population of the rayon. The higher the share of urban population in the overall number of residents in a rayon, the greater will be this difference. For example, in Ukrainian and Latvian SSR, the rural population density is about 75% of the density of the overall rayon population; the situation is different in Uzbek, Kirgiz and Moldavian SSR, where the difference in population density does not even constitute 10%. When planning medical services for the rural population it is purposeful to proceed from the overall population density in the region, since medical care for the urban population is inseparable from the medical care rendered to the entire population of a region (including the urban settlements in the area and the population of rayon centers) regardless of whether these are settlements of an urban or rural type. It is very important as well to use such indices as the mean population size of a rayon, including urban and rural population, for planning the development of medical care.

Considerable adjustments need to be made with respect to the sizes of the areas considered.

The total area of the USSR territory constitutes 22.4 million km. As of 1 January 1966, there was a population of 231.9 million in this territory. The overall population density was 10.3 people per square km. However, over half the area of the country is in the east-Siberian and far eastern regions and Tyumenskaya Oblast--these economic regions include extremely sparsely populated areas of the extreme north. In these regions the population constitutes 13.6 million, or 6% of the country's entire population. If we did not count them, the USSR population density would be doubled and would constitute 20.1 people per square km.

There are also wide fluctuations of population density in Uzbek, Kazakh, Georgian, and Tadzhik SSR.

In order to determine the size of the territory that should be considered in planning medical care for residents of different regions, we excluded from the overall territory of the USSR and Union republics (which is 22.3 million square km, not counting the seas of Azov and Belaye), the territory of the State Reserve Land and State Land Fund (without long-term utilization of kolkhozes and sovkhoses)--11.3 million square km, occupied primarily by desert areas (tundra, tayga, deserts, mountains) and 0.6 million square km referable to other land use (cities, railroads, etc.). Thus, we took into consideration only the territory used for agricultural purposes and constituting 10.4 million square km. The appropriate adjustments were made for all Union republics. In Chapter 6 we submit the indices of population density for the USSR and Union republics, as well as data pertaining

to size of rural population in rayons and the mean territory of a rayon, as combined with hospital network planning.

In view of the enlargement of rayons, there was also an increase in mean population size in a rayon with an increase in share of rayons with a large population. The large regions have better conditions for providing qualified specialized medical care and for developing a system of large and well-equipped therapeutic institutions. The population size in a rayon is always an important index that must be taken into consideration when planning the public health network and determining the location of medical institutions.

When there is uniform distribution of the rural population in an area, population density is the starting point for determining the range of medical care with a given population size, as provided by a medical institution, for example a rural district hospital; or, on the contrary, for determination of the population size with a given range of service. Zemstvo authors equated the entire area to be serviced to the area of a circle as determined using the formula,

R^2 . The same formula was recommended by V. S. Nikitskiy in 1946 and I. I. Rozenfel'd in 1955. Using this method, with the radius given, the population size equals the density (number of residents per square km) multiplied by the area of the circle, and with a given population size, the radius equals the square root of the product of dividing the number by the density index and π . If we designate population size as capital H, radius as capital R, and population density as we shall obtain the following equation:

$$H = \pi \times R^2; R = \sqrt{\frac{H}{\pi}}$$

However, one cannot always apply this formula, particularly when planning the specific location of a network of medical institutions.

From the standpoint of public health planning, in addition to population density there are several other indices of rural settlement that are important:

a) Number of inhabitants per rural populated settlement; in this respect, we also have different types of settlements, such as the homestead system in Latvian and Estonian SSR, the large villages in Moldavian SSR, and the Cossack villages of Krasnodarskiy Kray.

Table 7 illustrates the grouping of rural settlements according to population size in different Union republics. In republics such as Lithuanian, Latvian and Estonian SSR, the vast majority of the rural population resides in small settlements with a population of less than 200 (the homestead system).

By contrast, in Moldavian SSR, over 80% of the rural population lives in large settlements with over 1,000 residents. Large rural settlements are also typical for the Ukrainian SSR, Armenian SSR and several oblasts in the Russian Federation.

Table 7

GROUPING OF RURAL SETTLEMENTS ACCORDING TO NUMBER OF INHABITANTS
IN DIFFERENT UNION REPUBLICS* (CENSUS DATA AS OF 15 JANUARY 1959
PERTAINING TO STATUS OF RURAL SETTLEMENTS AS OF 1 JANUARY 1961)

Union republics	Up to 200		201-1000	1001 or more
USSR	100	20.4	42.8	36.8
breakdown:				
RSFSR	100	24.4	43.4	32.2
Ukrainian SSR	100	6.0	38.2	55.8
Belorussian SSR	100	34.9	56.3	8.8 *
Uzbek SSR	100	16.1	55.1	28.8
Kazakh SSR	100	14.8	45.2	40.0
Georgian SSR	100	7.6	46.9	45.5
Azerbaijani SSR	100	10.8	53.6	35.6
Lithuanian SSR	100	72.9	25.4	1.7
Moldavian SSR	100	1.6	17.5	80.9
Latvian SSR	100	95.0	4.8	0.2
Kirgiz SSR	100	13.9	44.3	41.8
Tadzhik SSR	100	16.4	52.8	30.8
Armenian SSR	100	2.5	35.2	62.3
Turkmen SSR	100	9.1	64.3	26.6
Estonian SSR	100	90.0	9.1	0.9

*TsSU SSSR, NARODNOYE KHOZYAYSTVO SSSR V 1961 G., Moscow, pp.56-57, 1962.

b) Density of settlements or number of populated areas within a specific territory. Evidently, with a given population density, the more people there are the lower the settlement density and vice versa.

c) Settlement of the people in a territory. In this respect, the location of the rayon center in the middle or in outlying parts of a region is significant as also is the existence of isolated populated settlements that are separated from the rayon center by areas that are separated from the rayon center by areas that are inaccessible (river, swamps, mountain pass, etc.), arrangement of worker settlements, and other factors.

d) Ways and means of transportation: railroad, waterways, highways, good roads, bus transportation. The populated settlements that are far from the rayon center but that have convenient transportation to it are in a better situation than close settlements that do not have good communication with the rayon center.

All these factors in turn depend on several causes--natural, economic, and historical. They do not remain the same, rather, they are in a process of gradual changes occurring under the influence of the transforming effect of the building of socialism.

In the last few years a new area of scientific research has been developed that deals with the patterns of settlement of the population in different parts of the country, on the boundary between demography and geography, which has been named population geography. The methods used in this science and its specific achievements are very important to public health planning.

The diversity of factors that influence the nature of rural settling makes it necessary to use a specific approach to the public health planning in each region. Even within the boundaries of a single republic, kray or oblast, we encounter considerable diversity of types of settling. For example, the southern and northern regions are different in Krasnoyarskiy Kray, the mountainous part of Svanetiya and the Black Sea region of Georgia, Donetskaya and Khmel'nitskaya Oblast of the Ukraine, Tashkentskaya Oblast and Karakalpak ASSR. Nevertheless, it is possible to establish the most typical forms of settling for the different natural and economic regions of the country, the distinction of which could be taken into consideration in public health planning and organization. ▲

* * * * *

The age and sex structure of the population is important to public health planning. Therapeutic and preventive services to different age groups present their own distinctions, and they are characterized by specific organizational forms. This applies primarily to therapeutic and preventive care for children and women.

Each age group has its own inherent structure and level of morbidity, and hence a different level of specialized medical care requirements. There being the same age-related standards of specialized medical care, the mean standard per 1,000 overall population would be different with a different age structure of the population. For example, if we consider a standard of 6 hospital beds per 1,000 child population at the age of 0-15 years, in central Asian republics where children of this age constitute about 30% of the total population, it would be necessary to have 1.8 pediatric beds per 1,000 population, whereas in the Baltic republics, where children constitute about 20%, with the same standard, only 1.2 pediatric beds per 1,000 population would be required.

The age and sex structure varies with reference to urban and rural population, as well as different Union republics. The differences

are related to differences in birth rate and age-related mortality rate, as well as migration processes. Demographic processes referable to prior generations are reflected in the age and sex structure of the population. For example, at the present time, the age and sex structure of the population still bears the traces of the death of millions of people, primarily men of a mature age, during the period of the Great Patriotic War, and the sharp drop of birth rate in those years.

We submit data pertaining to the age structure of the USSR urban and rural population according to the 1959 census (Table 8).

Table 8

AGE STRUCTURE OF THE USSR POPULATION ACCORDING TO 1959 CENSUS*

Age groups, years	Overall population	Urban	Rural
0-9	22.2	19.7	24.5
10-19	15.2	15.1	15.4
20-29	18.4	20.4	16.7
30-39	14.7	16.3	13.1
40-49	10.9	11.7	10.1
50-59	9.2	9.0	9.3
60 & older	9.4	7.8	10.9
Totals	100.0	100.0	100.0

*TsSU SSSR, "Results of All-Union 1959 Census of the USSR" (summary volume), Moscow, pp. 50-51, 1962.

As can be seen in Table 8, the rural population is characterized by a larger share of children and old people and a lower share of individuals of middle, productive, age. Thus, individuals 20-49 years of age constitute 44.0% of the overall population, the figures being 48.4% for the urban population and only 39.9% for the rural. This is related to the migration from villages to cities to work in industry and to pursue studies, and this is referable predominantly to young individuals.

There are also differences in the age structure of the population of different Union republics (Table 9).

Table 9

AGE STRUCTURE OF THE POPULATION OF UNION REPUBLICS
ACCORDING TO 1959 CENSUS*

Union republics	0-9 years	10-59 years	60 & older years
RSFSR	21.9	69.1	9.0
Ukrainian SSR	18.8	70.7	10.5
Belorussian SSR	21.9	67.4	10.7
Uzbek SSR	30.2	60.4	9.4
Kazakh SSR	27.8	64.4	7.8
Georgian SSR	21.5	67.6	10.9
Azerbaydzhan SSR	29.4	62.2	8.4
Lithuanian SSR	18.7	69.4	11.9
Moldavian SSR	25.8	66.5	7.7
Latvian SSR	15.1	69.9	15.0
Kirgiz SSR	29.5	60.8	9.7
Tadzhik SSR	30.8	61.3	7.9
Armenian SSR	29.0	61.3	8.0
Turkmen SSR	30.4	61.7	7.9
Estonian SSR	15.8	69.1	15.1
USSR	22.2	68.4	9.4

*TsSU SSSR, "Results of All-Union Census of 1959 in the USSR" (summary volume), Moscow, pp. 54-55, 56-57, 1962.

Table 9 shows that in central Asian republics, as well as in Kazakh, Azerbaydzhan and Armenian SSR, the child population constitutes the highest percentage, and this is related to the higher birth rate; conversely, the Baltic republics are characterized by the lowest share of child population. The opposite applies to the share of individuals 60 or more years of age. The share of individuals 10-59 years of age shows negligible fluctuations, from 60.4% in Uzbek SSR to 70.7% in Ukrainian SSR. Also significant is the difference in proportion between urban and rural population in different Union republics.

Table 10

NUMBER OF MALES AND FEMALES IN AGE GROUPS PER 1,000
POPULATION OF THE SAME AGE, ACCORDING TO 1959 CENSUS*

	Male	Female		Male	Female
Overall population	450	550	40-44 years	384	616
0- 9 years	509	491	45-49	384	616
10-19	505	495	50-54	384	616
20-24	494	506	55-59	334	666
25-29	490	510	60-69	349	651
30-34	453	547	70 and older	319	681
35-39	391	609			

*TsSU SSSR, "Results of All-Union Census of 1959 in the USSR" (summary volume), Moscow, pp. 54-55, 56-57, 1962.

In the USSR population, males constitute 45%, and females 55%. This proportion varies considerably in different age groups; the share of women increases sharply in the older age groups. At the same time, with advance in age, starting with the age group of 30-34 years, there is a drop in the number of married women. This reflects the consequences of wartime. We submit the relevant data in Tables 10 and 11.

These data are very important in planning obstetric and gynecological care.

What age groups must be taken into consideration in public health planning? First of all, we must divide the population into two large groups: the child population 0-15 years of age, and the adult population 16 or more years of age. It is necessary to make such division because there is a special network of pediatric medical institutions and pediatricians to provide therapeutic and preventive services to children. Within the child age group, with due consideration of anatomical and physiological distinctions, morbidity level, forms of organization and standards of therapeutic and preventive care, the following age groups are distinguished:

0-1 year)	
1-2 years)	infants
2-3 years)	
3-7 years		preschool children
8-15 years		school children

Table 11

NUMBER OF MARRIED INDIVIDUALS PER 1,000 OF THE
SAME SEX AND AGE ACCORDING TO 1959 CENSUS*

	Men	Women
Total population 16 or more years of age	695	522
16-17 years	5	29
18-19	41	171
20-24	274	501
25-29	800	759
30-34	922	776
35-39	953	725
40-44	962	623
45-49	963	549
50-54	956	485
55-59	945	433
60-69	908	361
70 & older	739	169

*TsSU under the USSR Council of Ministers, "Results of All-Union Census in 1959" (summary volume), Moscow, p. 72, 1962.

In the adult population, one should distinguish the group of men 60 or more years of age and women 55 or more years old. These are the ages at which there is the most clearcut demonstration of distinctions referable to morbidity and pathological processes that are inherent to the elderly; on the other hand, because of the transfer to a pension and termination of work, there is also a change in the structure of requests for medical attention under the influence of changes in living and working conditions, as well as lack of a necessity to issue medical certificates. The expected continued increase in the share of elderly individuals will definitely leave its mark with regard to change in structure and volume, as well as organizational forms of medical care for the public.

Changes in age structure of the population are very important to forecasting morbidity. We should mention in particular the significant increase in number and share of elderly individuals, and this is related to the systematic increase in mean life expectancy which rose from 44 years in 1926/27 to 70 years in 1960/61. Between 1939 and 1959, the share of individuals 50 or more years of age grew from 13.4 to 18.6%, whereas the share of individuals 60 or more years of age increased from 6.8 to 9.4%. In absolute figures, in this time, the number of individuals 50 or more years of age increased from 25.5 million to 38.8 million, which is a 13.3 million increase. According to the USSR mortality tables, 53,000 people lived to 50 years of age per 100,000 births in 1926-1927, in European USSR; this applied to 82,800 in all of the USSR in 1964-1965; survivals up to 60 years constituted 44,700 and 71,900, respectively; and those who lived up to 70 years constituted 31,800 and 52,700, respectively (5). The number and share of elderly individuals will continue to increase, and this cannot help but result in significant changes in morbidity level and structure.

In long-term planning, one must determine the number, age and sex structure of the population, as well as territorial location and distribution in cities and rural areas for the end of the planning period as well as different years thereof. Such estimates require complex calculations and consideration of a number of demographic and economic factors. There should be a standard method of making long-term projections of the population for all sectors of the economy. For this reason, special estimates are made by the Central Statistical Administration and its republic-level and local agencies.

The division of the population used in demographic statistics according to other signs, such as social groups, educational level, occupation, etc., which is very significant to the characterization of economic, social and cultural changes in the population, is not directly used in public health planning practice. At the same time, in public health planning, it is extremely important to be aware of the particular groups requiring special organizational forms and methods, as well as special standards of medical care. For example, one must distinguish, among infants and preschool children, those who are reared in preschool institutions--creches and nursery schools; among school children, one should distinguish the groups that are reared in boarding schools. With reference to adolescents, one must take into consideration separately the working adolescents, including those who are attending trade schools. In order to plan medical care for industrial workers we must know about the worker groups subject to services in the shop. More comprehensive knowledge about the number and composition of the serviced groups is needed for operational planning of the work of subordinate public health bodies and various therapeutic and preventive institutions, as well as sanitary and epidemiological stations.

Here, we could be dealing with different occupational groups subject to regular examination, groups subject to preventive inoculations, mass special-purpose screening, etc.

Determination of the number of individuals in all these groups should be made by public health agencies on the basis of data from the relevant organizations and institutions, enterprises, departments of public education, public catering, and municipal administration, etc.

Analysis of Statistics Dealing with Morbidity Rate

Statistics pertaining to morbidity are the most important indices of the health status of the population and dynamics thereof. In public health planning, these data are used in two directions. In the first place, data pertaining to morbidity and dynamics thereof help determine the main trends and tasks to lower the incidence of the most important and most widespread diseases, as well as the effectiveness of scheduled purposeful health-improving and therapeutic-prophylactic measures to lower morbidity; in the second place, the morbidity level and structure determine the required volume of medical care, organizational forms thereof and distribution according to types of care (polyclinics, care in the home, hospital care, sanatorium care) and according to medical specialties.

In order to make proper use of statistics pertaining to morbidity, one must be well informed as to the source of these data and extent of their reliability.

As we know, there are several forms of pursuing statistical studies of morbidity: statistics of overall morbidity, statistics of morbidity referable to blue and white collar workers involving temporary disability, statistics of infectious morbidity, and dispensary statistics. Of these types of morbidity statistics, most often statistics pertaining to overall morbidity are used for planning purposes. With respect to origin, overall morbidity statistics are the oldest type of statistical investigation of morbidity, dating back to the times of zemstvo medicine; this is the most global form that covers all age and social groups, all classes of diseases and nosological forms, all medical specialties.

The indices of overall morbidity are closely related to the volume of polyclinic and hospital care.

When evaluating data pertaining to overall morbidity one should bear in mind that they are in essence data pertaining to requests made by the public for medical attention. They reflect only the diseases that were registered in the course of one year.

Requests for medical attention are determined in essence by the morbidity rate, but they also depend on a number of other circumstances: a) accessibility of polyclinic care (distance, number of physicians, how office hours are organized, etc.); b) activity of polyclinic operation (active patient visits, dispensary supervision, health education work, physicals); c) degree of development of specialized medical care (availability of medical specialists and special medical equipment); d) legislation dealing with social insurance and expert medical evaluation of disability; and e) cultural standards of the public and concern for their own health.

When forecasting the morbidity rate over a projected period, one must bear in mind that the increase in polyclinic care and improvement of its quality may lead to an increase in the number of recorded cases of illnesses, even when there is a decline of so-called true morbidity. The greater accessibility of medical care has always resulted in increased requests initiated by the public, and thus there is an apparent rise of the morbidity rate. Mass fluorographic screening first resulted in the demonstration of a considerable number of "new" cases of tuberculosis that were previously unknown to the tuberculosis-control dispensaries, so that there was a temporary rise of indices referable to the incidence of tuberculosis.

With the changeover to full coverage of the population with dispensary care, no doubt there will be an increase in the number of registered patients because of regular, annual polyclinic supervision of the groups subject to dispensary care.

Provided the polyclinic care requirements of the public are fully satisfied, the number of requests initiated by the public referable to acute diseases may be considered equal to the level of morbidity referable to these nosological forms. Overall morbidity statistics could serve as the basis for planning and forecasting morbidity referable to these nosological forms.

The situation is much more complex with regard to chronic disease. It has been established that the number of requests for medical attention related to this group of illnesses is considerably lower in the course of a year than the actual number of cases of illnesses. Thus, according to the data of E. I. Deychman, the index reflecting the incidence of essential hypertension is underestimated by 3-4 times according to the records. The same applies to rheumatism. The works of A. P. Zhuk, F. M. Ilupina and V. D. Dubrovina indicate that the number of individuals who did not visit a polyclinic in the two districts of Ivanovo that were studied constituted 26.2% of the entire population 14 or more years of age, and the figure was 17.3% for Saratov. When individuals who did not visit polyclinics were submitted to a physical examination, it was found that 24% of them required regular medical supervision. At a younger age, this need, for medical attention was determined primarily because of such illnesses as rheumatism, peptic ulcer, neurological pathology, and in the older age groups was essentially due to cardiovascular pathology.

With expansion of dispensary coverage for sick and healthy groups, there will be an increase in the annual registration of patients suffering with illnesses such as essential hypertension, peptic ulcer, etc. The actual decline of morbidity rate can be demonstrated only if regular supervision over a period of several years has been provided after total dispensary coverage will be organized for the sick groups, or periodic sample mass-scale physicals will be instituted in the same populated areas.

However, even the physical examinations cannot yield an exhaustive picture of the morbidity rate, since they can miss illnesses during periods of remission or forms that do not present pathological changes at the time of the examination, for example arterial pressure elevation in the presence of grades I and II essential hypertension.

Only exhaustive dispensary statistics with complete coverage with dispensary supervision of groups of patients suffering from a given illness can provide the actual dynamics of morbidity over a period of years with reference to a given nosological form or group of nosological forms. In this case, the morbidity rate is determined by a set of indices, the dynamics of each of which present their own trends and require special evaluation. For example, the following are recorded in dispensary statistics referable to tuberculosis: a) number of new cases of tuberculosis (morbidity in the actual sense of the word); b) number of individuals suffering from an active form of tuberculosis who are under dispensary supervision (groups); c) number of individuals who have had active tuberculosis and have been transferred to the control group, i.e., essentially recovered; and d) number of individuals who died of tuberculosis.

These main groups are differentiated according to form, stage and localization of illness.

Thus, the size of the patient groups is a figure that depends on the proportion between newly detected sick cases and number of individuals removed from the records because of recovery or death. The dynamics of number of newly picked up sick cases under conditions of exhaustive record-keeping reflect the effectiveness of preventive measures; the dynamics of number of individuals removed from the rosters because of transfer to a control group, as well as the rates of decline and or mortality level reflect the effectiveness of therapeutic measures.

In the case of tuberculosis, when a patient is the source of infection for those around him, a decline in morbidity is largely determined by a decrease in the size of patient groups and radical therapy. In the case of noninfectious pathology, for example essential hypertension, occurrence of new sick cases is not causatively related to the dynamics of the patient groups, although each can decline concurrently under the influence of the same factors such as, for example, improved material welfare of the public, housing, etc.

With reference to some diseases, therapy is not radical enough to obtain a total cure, however, it can prolong the patient's life; in such cases, even with a lower morbidity rate, there will be relative stabilization of patient groups or even accumulation thereof.

The dynamic trends of morbidity would be even more complex if we consider the different forms, stages and localizations of pathology.

In our country, where therapeutic and preventive care is increasing systematically, there should also be an increase in morbidity recorded by medical institutions. For this reason, a systematic decline of requests for medical attention over a period of several years, referable

to some nosological form or group of diseases that are etiologically related, would be indicative of a true decline of morbidity, as demonstrated in Chapter 4 with reference to such pathology as diphtheria, pertussis, tracheobronchitis, conjunctivitis, pyoderma and others. Conversely, an increased number of requests for attention referable to some pathology or other could also occur with a decline of so-called true morbidity, because of the greater availability of specialized medical care, better detection of pathology and improved quality of diagnostics, development of dispensary methods of working, and others.

Changes in age structure of the population also affect morbidity dynamics. With unchanged or even somewhat lower morbidity in homogeneous age groups, the overall morbidity index referable to some diseases may rise in relation to the overall population. Thus, the process of "aging" of the population in itself causes an increase in incidence of diseases that strike primarily the elderly, for example cardiovascular pathology, malignant neoplasms, and others. At the same time, there is a decline in the incidence of a number of acute diseases and traumatism.

The trends of age-related incidence of diseases are related to the physiological age-related distinctions of the organism, gradual accumulation of immunity to infectious disease, working and living conditions. As an illustration, we shall cite data from the research pursued by the department of health statistics, Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, under the guidance of Professor A. M. Merkov: "Data On Morbidity of the Inhabitants of Ivanovo in 1955" (Moscow, 1959). Table 12 indicates only the categories of disease and nosological forms of which the incidence is rather high, in excess of 50 per 1,000 population.

Let us compare the morbidity structure in the age groups of 30-39 years, 40-49 years, 50-59 years, 60 or more years of age. We divide all diseases into three groups: the first group refers to pathology the incidence of which drops with increase in age; the second group deals with diseases the incidence of which grows with increase in age; and the third group comprises illnesses the incidence of which present significant and consistent changes as a function of age.

The first group of diseases includes sore throat [tonsillitis], influenza and acute catarrh of the upper respiratory tract, trauma (with the exception of trauma involving injury to bones and joints), pyoderma, pathology of female reproductive organs, pathology of pregnancy and parturition. There is a consistent decline of incidence of these forms of pathology in elderly individuals. This involves a change to a less active life style, fewer contacts on the job, in social life and transportation, as well as the fact that there is no need to fill out medical certificates when one is retired. With reference to gynecological pathology, regression and termination of reproductive function with age are involved.

The second group includes cancer and other malignant neoplasms, cerebrovascular lesions, trauma involving injury to bones and joints,

pathology of the eye, respiratory organs, circulatory organs, bones, muscles and articulations, pathology of male reproductive organs (adenoma of the prostate). These are diseases that are directly linked with age-related changes in the organism. They increase progressively with increase in age. True, there is some decline in incidence of pathology of the bones, muscles and joints in the transition from the age group of 50-59 years to the age group of 60 or more years of age, whereas the incidence of lumbosacral radiculitis reaches the highest level at 40-49 years of age.

The third group includes all other diseases, including pathology of digestive organs, neurological pathology, diseases of the ear, throat, nose, pathology of the skin, with the exception of the nosological forms we referred to in the first and second groups, pathology of the kidneys and urinary tract, and other diseases. It is obvious from the data we have submitted that forecasting morbidity without consideration of the structure of morbidity according to age and sex groups and proposed changes therein in the future would not lead to the proper conclusions. We can consider valid only a comparison or projection of age-related structure of morbidity or dynamics of overall morbidity provided it is standardized according to a specific age structure. In long-term planning, if we know the structure and level of age-related morbidity at the start of the planning period and the projected age structure of the population at the end of the planning period, we can compute the morbidity level that will exist at the end of the planning period, provided the level of age-related morbidity remains unchanged. After this, we must turn to forecasting morbidity with consideration of changes in its age-related indices with reference to specific nosological forms.

Great difficulties are involved in using, for planning purposes, the data pertaining to overall morbidity that are submitted in statistical reports, and which are not normally used in planning practice. The records of medical institutions contain information concerning only a limited group of diseases; the records do not reflect the structure of morbidity according to sex and age groups; primary record-keeping (forms 25-v) presents a number of flaws and does not assure accuracy of the results; inevitably, duplication occurs if data pertaining to morbidity are combined on the basis of the records of different institutions. At the same time, in order to determine the morbidity rate in the USSR, a Union republic or oblast, there is no need to keep complete morbidity records; one can use the data from a properly pursued study of a sample. In this regard, to obtain more reliable and more complete information about morbidity, we have in recent years turned to in-depth studies of samples, using directly the data in the primary records. Provided the proper choice of "clusters" is made for the study and preliminary work is pursued with regard to instructions and methodology to improve the quality of record-keeping, such investigations yield reliable data on the level and structure of morbidity. We have indicated above that such a study was pursued in 1956 by the scientific staff of the department of health statistics at the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, in Ivanovo, under the supervision of Professor A. M. Merkov. When this study was pursued, they first surveyed

the status of records on morbidity. This study was pursued on the basis of primary records (forms of confirmed diagnoses; form 25-v, patient discharge cards, dispensary control cards) that were filled out for the entire population of the city; all of the primary records were alphabetized for the entire city to confirm the data and eliminate duplication. Selection was made of 20% of the "sick individuals" to be coded and submitted to further statistical processing (random sample).

As a result of this study, some valuable data were obtained on morbidity according to classes of diseases and nosological forms, as function of sex and age, overall and hospital death rate, screening for hospitalization and composition of hospitalized patients. In Table 12, we have submitted some of the information pertaining to age-related morbidity of the inhabitants of Ivanovo in 1955, on the basis of this investigation.

In 1958-1959, in connection with the census of the population of the USSR which established exact data pertaining to the size and structure of the USSR population, an in-depth morbidity study was pursued by the scientific and methodological office of health statistics, RSFSR Ministry of Health, Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, the Ukrainian Institute of Municipal Hygiene and other institutions in many cities and in dozens of rural areas.

Thus, in the RSFSR alone, the study was pursued in 114 cities, 144 rural areas and 100 industrial enterprises. These in-depth sample studies yielded some rather important information about the level and structure of morbidity among the population of the USSR, and also proved of great value in public health planning. Such investigations, pursued periodically at specific intervals in cities and populated centers with a high level of therapeutic-prophylactic care and well-organized statistical records, make it possible to analyze shifts in morbidity rate, and they facilitate the task of forecasting morbidity which is so important to public health planning.

An important prerequisite for statistical reliability of an in-depth sample study of morbidity is its representativeness and this is provided by an adequate number of cases, proper choice of "clusters" for the study and a statistically proper sample at the selected bases. The necessary requirements for the choice of bases for such studies have been analyzed in the article by V. K. Ovcharov, "Formation of a Sample to Study Morbidity of the Population" (SOVETSKOYE ZDRAVOOKHRANENIYE, No. 8, 1965).

However, in spite of all their value, the results of the in-depth investigation of overall morbidity cannot be used directly as the basis for implementing planned measures to develop the network of public health institutions and to determine the standards of specialized types of medical care. These investigations do not deal with the link between morbidity level and volume of medical care, without which one cannot determine such important indices to planning as frequency of visits, screening for hospitalization, duration of hospital care and bed turnover.

Table 12

AGE-RELATED MORBIDITY AMONG INHABITANTS OF IVANOVO ACCORDING
TO REQUESTS FOR ATTENTION IN 1955 REFERABLE TO DIFFERENT
CLASSES AND NOSOLOGICAL FORMS (PER 1,000 OF THE SAME AGE)

Classes of diseases and individual nosological forms	Age groups (years)										all older ages	all ages
	0-1	1-2	3-6	7-12	13-19	20-29	30-39	40-49	50-59	60 & over		
Total breakdown:	2565.1	262.2	844.2	785.5	137.2	819.9	1068.4	160.1	217.8	219.1	997.5	225.5
Infectious disease including	641.4	704.0	764.3	807.7	439.0	165.5	179.9	157.7	125.1	111.7	17.3	948.0
viral influenza	234.6	245.9	197.2	197.8	111.5	20.9	34.8	43.1	32.4	32.2	14.3	61.6
dysentery	162.0	122.9	56.2	23.5	7.0	7.0	8.0	5.1	10.8	9.1	4.8	13.5
pertussis	65.8	72.0	65.1	47.4	8.0	—	0.2	—	—	—	—	8.0
scarlet fever	14.4	57.2	95.7	113.2	33.9	1.5	0.1	0.2	0.2	—	—	14.1
measles	38.8	57.2	90.7	77.0	28.3	0.4	0.2	—	—	—	0.2	11.3
sore throat	39.7	58.7	111.4	127.2	121.8	101.8	93.8	69.8	48.7	33.6	10.1	76.8
Trauma:	24.5	47.0	48.3	60.7	74.2	148.3	150.8	128.0	120.5	106.5	75.6	116.8
without bone and joint injury	10.1	21.9	28.6	41.5	51.0	105.3	108.7	91.1	87.8	75.8	52.9	82.6
Nervous system pathol. including lumbo-sacral radiculitis	4.2	7.0	6.9	8.9	12.6	10.3	30.3	77.9	113.3	102.4	73.0	56.2
Eye pathology includ. conjunctivitis	93.7	60.3	92.7	73.2	96.1	73.8	55.1	59.2	89.9	104.6	109.0	81.5
	81.9	43.9	62.1	53.0	32.2	24.4	27.0	29.8	30.9	31.5	26.0	33.3
ENT pathology	376.8	558.3	500.0	455.9	264.9	203.7	256.7	261.3	245.0	205.1	108.8	274.0
acute otitis	137.6	87.7	78.9	89.2	35.4	11.6	10.2	7.2	7.4	5.5	5.2	21.9
upper respiratory tract catarrh	697.0	439.3	374.7	290.6	131.3	100.1	170.6	181.0	163.7	136.5	61.0	177.9
Respiratory pathol. bronchopneumonia tracheobronchitis	368.8	224.0	163.7	132.6	41.3	13.9	21.0	32.3	41.8	66.3	71.8	57.5
	274.3	141.1	106.5	71.9	20.4	4.3	4.5	7.6	7.3	13.4	11.5	23.0
	92.0	72.9	53.2	50.7	16.7	6.7	10.7	12.3	14.8	14.1	8.6	18.5
Digestive pathol. dyspepsia	223.6	73.6	59.2	41.3	27.6	43.7	80.0	107.6	116.1	106.0	66.8	83.5
acute & chronic gastritis	194.1	—	—	—	—	—	—	—	—	—	—	3.8
	3.4	1.6	2.0	4.2	3.5	14.8	33.6	46.9	59.2	53.4	30.6	33.3
Circulatory pathol. myocarditic cardio-sclerosis	17.7	27.4	21.7	19.6	10.1	15.1	29.3	53.7	107.6	193.5	221.5	74.1
essential hypertens.	0.9	—	—	—	0.2	0.3	1.4	1.7	23.4	60.1	71.1	16.7
	—	—	—	—	—	2.0	5.3	12.7	36.1	72.9	72.2	22.3
Skeletomuscular system pathology	7.6	0.8	4.9	5.4	7.8	23.6	36.4	44.5	60.2	60.5	36.2	36.7
Skin pathology pyoderma	140.1	68.9	96.6	95.9	92.3	99.5	88.0	77.5	72.7	54.8	35.0	81.3
	72.6	38.4	61.1	47.2	43.0	62.0	55.3	48.4	41.9	25.2	9.3	46.1
Female reproductive organ pathology	1.7	2.3	1.0	2.6	0.6	4.3	45.2	65.3	57.8	28.6	6.4	31.7

In addition, one must bear in mind that in the activities of medical institutions a certain place is occupied by measures that are not directly related to morbidity, such as preventive visits and physicals.

On the basis of the results of a sample study of overall morbidity one cannot determine the distribution of polyclinic visits according to

the nature thereof (therapeutic, dispensary) and according to place where medical care is rendered (polyclinic and at home), yet this is very important to medical care planning.

Also rather significant is the fact that planning is pursued according to specialized types of medical care, while taking into account the classification of medical care as rendered by physicians or hospital departments in different specialties.

In the 1950's several reports were published on morbidity the results of which were directly related to the task of setting standards of polyclinical and hospital medical care requirements.

Let us mention the most important distinctive features of these investigations.

- 1) Cities, rayons or industrial enterprises with the highest level of satisfaction of medical care requirements were used as the bases.
- 2) The investigation was based on special cards on which the necessary data were copied from primary medical records (outpatient charts, hospital case histories, child development histories, preventive screening logs, etc.) containing information not only about the morbidity rate but also about the volume and nature of medical care rendered.
- 3) The study of morbidity was merely the first stage of a composite investigation that was immediately followed by the next stage, determination by means of special methods of the standards of availability of therapeutic and preventive care to the population or different groups thereof.

The in-depth nature of such investigations, the large amount of information contained in the primary statistical card, the need for involvement of a considerable number of qualified statisticians and medical specialists in this work ruled out the possibility of pursuing the investigations on a mass scale meeting the strict requirement of statistical representativeness. Such studies can be made on only a limited number of bases, in different cities or rayons that are the most typical for a given economic region, and they are in the nature of monographic studies. Their value is in their disclosing a number of trends and correlations of paramount significance to public health planning, trends and correlations that cannot be detected in a mass scale sample study of morbidity as we discussed above.

Studies of morbidity in different cities and rural areas, as well as in industrial enterprises, in conjunction with work dealing with determining the medical care requirements of the public began in the 1950's at the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko. Such a study was pursued for the first time by I. D. Bogatyrev in the city of Likino-Dulevo, Moscow Oblast (SOVETSKOYE ZDRAVOOKHRANENIYE, No. 1, 1956). A collection entitled "Standards of Therapeutic and Preventive Care of Industrial Workers"

(by I. D. Bogatyrev, O. A. Aleksandrov, M. S. Brilliantova, A. Ye. Shakhgel'dyants) was published in 1958; the data and scientific conclusions in this collection were based on a study of worker morbidity in a number of metallurgical, coal, mining, textile and chemical enterprises. In 1959, I. D. Bogatyrev published his article, "Data Pertaining to Standards of Urban Therapeutic and Preventive Care Requirements" (ZDRAVOOKHRANENIYE ROSSIYSKOY FEDERATSII [Russian Federation Public Health], No. 11, 1959) based on an in-depth study of morbidity using the above method, referable to five cities (Magnitogorsk, Dneprodzerzhinsk, Rubezhnoye, Likino-Dulevo, and Tashkent).

We should also mention the work by I. V. Pustovoy dealing with morbidity at an industrial enterprise in Moscow Oblast for the purpose of determining the medical care requirements of workers.

An analogous method of studying rural morbidity was used by the scientific staff of the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko: P. I. Kal'yu, B. M. Matsko, Ye. D. Zagorskaya, Ye. A. Loginova, S. Ye. Il'in, and O. N. Stel'makh, in their work dealing with medical care requirements of the rural population in four rural regions of the Russian Federation.

A number of authors investigated morbidity by the method of excerpting data from primary medical records to determine the public requirements with regard to some specialized forms of medical care. We refer to the works of V. D. Dubrovina, F. M. Ilupina, L. I. Gribkova, in Kineshma to determine the hospital care requirements; those of A. P. Zhuk, V. D. Dubrovina and F. M. Ilupina in Saratov and Ivanovo to determine the ambulatory polyclinic care requirements; those of V. A. Zhuk in Kursk to determine the therapeutic polyclinic care requirements; and those of V. D. Dubrovina in Kolomna to determine the medical care requirements of the public related to cardiovascular disease.

More recently, for a number of reasons (lower incidence of some acute pathology, change in clinical course of a number of diseases, advances in therapeutics that prolong patient survival, change in age-related structure of the population) there has been an increase in the share of chronic diseases in the overall number of illnesses. Investigation of morbidity according to requests for attention cannot pick up all of the chronic diseases since many of these patients do not visit therapeutic institutions each year, while some patients never seek medical attention. These patients constitute a reserve for further expansion of medical care in connection with development of the network of medical institutions, improved diagnostics, greater coverage of the public with dispensary supervision, and higher sanitary standards. For this reason, for the purpose of medical care planning, investigation of morbidity according to data on number of requests for attention should be supplemented by a study of the incidence of chronic disease by means of medical screening of the population or of specific groups thereof. Medical screening of the public has been practiced in Soviet public health from the earliest years of its existence. We refer to expeditionary screening, special-purpose examinations for the detection of some mass-scale diseases, and the periodic examination of various age and occupational groups.

In the last few years, in some of the scientific work dealing with the setting of standards for the medical care requirements of the public, comprehensive examinations of the public were made for the purpose of picking up patient groups that were not covered with medical care for different reasons within a given year, and these were taken into consideration in the long-term plan for the development of medical care.

These physicals were performed in the course of the above-mentioned work pursued at the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko (A. P. Zhuk, V. D. Dubrovina, F. M. Ilupina in Saratov and Ivanovo; V. D. Dubrovina in Kolomna; V. A. Zhuk in Kursk). In addition, such screenings were pursued for purely statistical purposes: to determine more exactly the incidence of some important pathology among the population. Special mention must be made of several works dealing with the incidence of cardiovascular disease (E. I. Deychman, V. A. Nesterov).

In some of the studies involving the use of physical examinations, a considerable difference was found between the morbidity indices according to requests for medical attention and according to the results of the physicals. As an example, we submitted in Table 12a the data of different authors referable to cardiovascular disease, including essential hypertension.

A large number of illnesses is detected in stomatological examinations. Thus, according to the data of G. A. Novgorodtsev (Stupino, Moscow Oblast) requests for attention are referable to 44.2% of the diseases that are picked up through the physicals; according to the data of N. M. Maslennikova (Kiev), this applies to only 27.2%.

An additional significant number of diseases is picked up in the course of eye examinations, particularly with reference to cataract (A. P. Pochevkin, V. F. Groyets), pathology of the ear, nose and throat (V. S. Kuznetsov), and other diseases.

Turning to other types of statistical investigation of morbidity, it should be stated that morbidity among blue and white collar workers involving temporary disability is not used much for planning the network and activities of medical institutions or for determining medical personnel requirements. This has several reasons. In the first place, statistics on morbidity with temporary disability cover only part of the population; they do not demonstrate morbidity referable to children, housewives, the disabled and retired, or the kolkhoz population. In the second place, they do not reflect overall morbidity, but only the more serious diseases or more advanced stages that cause disability. In the third place, the very method used for this type of morbidity records (measuring morbidity according to number of cases and days of disability, the extremely limited list of nosological forms) makes it difficult to use these data for planning purposes. Data on morbidity involving temporary disability should be used to plan comprehensive health-improving measures in different enterprises and different branches of industry, for the planning of shop services and specialized medical care for industrial workers.

Table 12a

<u>Author</u>	<u>Site of study</u>	<u>All cardiovascular system pathology according to</u>		<u>Essential hypertension according to</u>	
		<u>RMA*</u>	<u>PEF**</u>	<u>RMA</u>	<u>PEF</u>
E. I. Deychman	Noginsk	--	--	18.4	94.2
V. D. Dubrovina	Kolomna	92.0	261.7	23.8	57.7
V. A. Zhukov	Kursk	96.4	253.5	33.1	74.8
V. D. Dubrovina	Yelgava	70.0	193.7	10.8	32.7
R. S. Alekseyeva	Chelyabinsk Metallurgic Plant	21.9	191.6	--	--
N. I. Malov	Krasnodarskiy Kray, North Region	83.4	198.2	25.5	52.2

*According to data referable to requests for medical attention.

**According to findings of physical examinations.

The records pertaining to the movement of infectious diseases based on current reports (emergency notices) of public health physicians and bodies are reliable enough material, and these can be used as the basis of planning measures to lower the incidence of and to eradicate mass infectious diseases, and also to implement emergency operational measures in the case of rises in incidence and outbreaks of infections.

The best source of morbidity statistics is statistics referable to the most important nonepidemic diseases, on the basis of dispensary records. Dispensary statistics provide information about the annual number of new cases of sickness and movement of patient groups; it contains data about the distribution of diseases in forms and stages, in accordance with the established classification, sources of detection, frequency of advanced cases, effectiveness of treatment, etc. Dispensary statistics are based on the activities of specialized dispensaries that are directly involved in implementing therapeutic and preventive measures in a given specialty or for a group of diseases. For this reason, the planning of such forms of care as phthisiological and oncological should be totally based on dispensary statistics on morbidity and the incidence of these diseases. This cannot be said about the statistics referable to dispensary supervision according to different nosological forms that are implemented by polyclinics, in view of the inadequate and inconstant coverage of these groups with dispensary supervision, as well as the cause of the elementary methods of keeping statistical records of such diseases and the impossibility of using them to characterize the dynamics of morbidity and patient groups.

In connection with the change to coverage of the entire population with dispensary supervision, the significance of dispensary statistics will continue to grow. In the future, it should become the main source for the study of the extensiveness and incidence of chronic diseases among the people.

Analysis of Statistical Data on the Network and Activities of Public Health Institutions

To plan the rate of development of public health, the levels that should be reached by the end of the planning period, the proportions of development of different sectors and specialties, it is important to analyze the public health level reached at the start of the planning period, the rates of its development for the preceding planning period and the existing proportions. Differences in levels and rates of development of different sectors or special types of medical care may reflect the transition of some problems that have already been solved to new ones that gain prime significance in the planning period of public health development, or overcoming the lag of medical care in some republics or in some specialties.

There may also be instances where these differences reveal a disproportion in medical care resulting from miscalculations, planning flaws or nonfulfillment of plans, disruption of required balances, or other causes. To assess these differences a specific analysis must be pursued.

Let us compare the rates of growth of the USSR hospital bed resources as a whole and as related to some specialties (Table 13).

In the prewar period there was a particularly rapid rise in the number of hospital beds for infectious patients and maternity cases. The level of infectious morbidity was still relatively high and hospitalization of infectious patients was one of the most important methods of lowering the incidence thereof. The need to increase the number of maternity beds was derived from the tasks set forth in the decree issued by the USSR TsIK and SNK dated 27 June 1936: "Ban on Abortions and Expansion of the Network of Maternity Homes, Creches and Nursery Schools" (6).

After the war, in view of the sharp decline of infections as well as the high level of meeting the public requirements with regard to obstetric care, the rate at which beds in these specialties grew diminished visibly. Instead, there was the prominent task of controlling tuberculosis in order to obtain a sharp decline in incidence of this disease. This made it necessary to increase significantly the number of beds for patients with tuberculosis. Between 1950 and 1965, with an overall 2.2-fold growth of the hospital resources of the country, there was a more than 3-fold increase in number of beds for tuberculosis patients.

As a result of fascist occupation, after the war the number of psychiatric beds in the USSR diminished from 82,900 in 1940 to 70,900 in 1950. There was extremely inadequate satisfaction of psychiatric hospital care requirements. As a result of the steps that were taken, there was a 3-fold increase in the number of beds for mental patients between 1950 and 1965.

To significantly increase the number of beds for tuberculosis and psychiatric patients continues to be an extremely important task in the 1960-1970 public health plan.

Changes in the rate of increase in number of hospital beds referable to different specialties result in a change in the structure of the bed resources. Thus, between 1940 and 1965, the share of infectious and maternity beds dropped from 26.3% to 18.2% of the overall bed resources, whereas the number of beds for tuberculosis and psychiatric patients increased from 14.8% to 21%.

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By comparing the growth of the network according to number of beds and number of institutions, it is possible to analyze changes in the structure of the network and capabilities of therapeutic and prophylactic institutions. Thus, between 1950 and 1964, there was a 32.3% increase in number of oblast hospitals in the USSR, with a 2.3-fold increase in number of beds in them; there was a 28.7% increase in number of rayon hospitals in rayons with an urban center, with 2.1-fold increase in number of beds; the number of rural rayon hospitals diminished by 43.5%, while the number of beds in them increased by 9.3%; there was a 65.8% increase in number of rural district

Table 13
NUMBER OF HOSPITAL BEDS IN THE USSR IN 1940-1965

	1940 r.	1950 r.		1958 r.		1965 r.	
	thousands	thousands	B %	thousands	B %	thousands	B %
Total beds	790.9	1,010.7	127.8	1,532.2	153.2	2,225.5	145.3
Breakdown:							
maternity	113.5	122.5	107.5	162.2	132.4	190.9	117.8
infectious diseases	94.3	125.6	133.2	156.6	124.7	176.7	112.7
tuberculosis	34.0	75.8	223.0	142.1	187.5	259.2	182.5
mental cases	82.9	70.9	85.5	138.9	195.9	215.5	155.6

Table 14
HOSPITALIZATION OF URBAN AND RURAL POPULATION OF N-SKAYA OBLAST

	In cities	In rural areas	Total
Population as of 1 July 1964 (thousands)	520.0	480.0	1,000.0
Hospitalizations (thousands)	130.0	60.0	190.0
" -- urban residents	104.0	--	104.0
" -- rural	26.0	60.0	86.0
Hospitalizations per 100 population: without counting rural population			
serviced in cities	25.0	12.5	19.0
counting services to rural population			
in cities	20.0	17.9	19.0
Percentage of rural residents in relation to overall hospitalizations in cities	20.0		
Percentage of hospitalizations in urban and rural areas in relation to total number of hospitalized rural residents	30.2	69.8	100.0

hospitals, and the beds in them increased by 2.7 times. This was the result of an increase in the mean capability of all types of hospitals. The decree of the CC CPSU and USSR Council of Ministers dated 14 January 1960 made it compulsory primarily to build hospitals with polyclinics, with 300-400 beds in cities and industrial centers, and 600-bed or larger institutions in major cities. The number of beds in rural rayon hospitals had to be brought up to 100-200 or more. Further enlargement of urban and rural rayon hospitals is also stipulated in order No. 395, 31 July 1963, issued by the USSR Minister of Health: "Status and Measures for Further Improvement of Hospital Care of the People of the USSR."

As a result of implementing these decisions, between 1959 and 1964 the mean capability of oblast hospitals increased from 403 to 504 beds, that of urban hospitals increased from 109 to 137.8 beds, that of rayon hospitals in rayons with an urban center increased from 97.5 to 131 beds, that of rural rayon hospitals from 57.3 to 85.5 beds, and that of rural district hospitals from 16.9 to 25.6 beds.

The data referable to statistical records enable us to analyze the distribution of oblast, municipal, rayon and rural district hospitals according to size [capability]. This permits estimation, with some degree of accuracy, the distribution of bed resources among hospitals with different capabilities.

The number of district hospitals with a capability of 25-49 beds, which constitute 18.5% of all district hospitals in 1950, constituted 56.3% in 1964 with bed resources constituting 61.7% of the total bed resources of district hospitals. There has also been a significant increase in the number of hospitals with 50 or more beds, and their bed resources constitute 22.6% of all beds in district hospitals, versus 9.7% in 1950. At the same time, the bed resources of hospitals with fewer than 25 beds dropped from 57.5 to 15.7%. However, in 1964, these small hospitals constituted 34% of all district hospitals. There has also been a change in structure of the network of rayon hospitals and distribution of their bed resources.

While in 1950 rayon hospitals with a capability of 100 or more beds constituted 31.9% in urban areas and only 2.2% in rural areas, in 1964 their share rose to 77.2% in cities and 41.5% in rural areas. In 1950, the bed resources of these hospitals constituted 53.7% of the entire bed resources and rayon hospitals, and in rural areas 5.5%; in 1964, the share of bed resources referable to these hospitals constituted 88.3% in the cities and 57% in rural areas.

Order No. 395, 31 July 1963, issued by the USSR Ministry of Health set forth this task of reconstructing and enlarging central rayon hospitals and building new ones, mainly with 300-400 beds in the next few years. In 1964, only 15.2% of all central rayon hospitals had 200 or more beds. They accounted for 29.4% of the bed resources of all central rayon hospitals.

These data indicate that there is still considerable work to be done to enlarge and reconstruct central rayon hospitals as provided by order No. 395, 31 July 1963, of the USSR Ministry of Health.

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When assessing the availability of medical care and medical personnel to the public, the availability referable to the overall population and separately for the urban and rural population are submitted to analysis. The statistical records submitted data pertaining to number of medical institutions, beds, ambulatory visits, physician posts, in accordance with the territorial location of the institutions in urban settlements and rural areas. We know that urban hospitals and polyclinics also service the rural population to a large extent, particularly the rayon hospitals in rayons with an urban center and oblast hospitals and dispensaries. The report indicates the number of rural residents hospitalized in urban hospitals in accordance with each type of institution, and number of ambulatory visits paid by rural residents in the cities to all of the medical and hospital institutions, with distinction of oblast hospitals and rayon hospitals of rural rayons with an urban center, dispensaries according to specialties, some specialized departments of urban hospitals and non-unified ambulatory polyclinic institutions.

If we exclude the number of hospitalized rural residents from the total number of patients hospitalized in urban hospitals, we shall obtain the number of urban residents who made use of hospital care in the reported year; if we add the number of hospitalized rural patients in urban hospitals to the number hospitalized in rural hospitals, we shall obtain the overall number of rural residents who made use of hospital care. Only after this can one determine separately the percentage of hospitalizations for the urban and rural population. Let us explain this on the hypothetical example of hospitalization in N-skaya Oblast (Table 14).

The growth of bed resources was somewhat greater in urban areas than in rural areas; however, according to the index per 10,000 serviced population, availability of hospital care underwent faster growth for the rural population than for the urban.

This is attributable, in the first place, to the considerably greater growth of urban population and, in the second place, the increasing hospitalization of the rural population in urban hospitals.

The level of availability of hospital beds to the urban and rural population is gradually becoming the same (Table 15).

The increased availability to the rural population of hospital care is due both to development of the network of rural rayon and district hospitals, and to an even greater extent due to the increased volume of hospital care rendered to the rural population in oblast and urban hospitals, including rayon hospitals in rayons with centers in urban settlements.

Table 15

NUMBER OF HOSPITAL BEDS (EXCEPT PSYCHIATRIC) PER 1,000 URBAN
AND RURAL POPULATION IN THE SYSTEM OF THE USSR MINISTRY OF HEALTH

	1950	1958	1964
Urban population	7.6	7.5	8.8
Rural population	3.1	5.2	7.3
Beds per 1,000 rural population, as percentage of number of beds per 1,000 urban population	40.8	69.2	83.0

There are significant differences in hospitalization levels for the urban and rural population of different Union republics. While in Belorussia, Latvia and Estonia, the hospitalization indices are the same for the rural and urban population, in Uzbek, Azerbaydzhan, Lithuanian, Moldavian, Tadzhik and Turkmen SSR, the availability of hospital care to the rural population is still considerably behind that provided for the urban population. This is related to a number of causes, including the proportion between urban and rural population and degree of development of the rural hospital network. The administrative nature of the rayon centers and share of rayon hospitals are of decisive influence on hospitalization of the urban and rural population. Where most rayon centers are urban settlements and where there is a larger number of beds in rayon hospitals, as related to the overall bed resources, there is a smaller difference between the urban and rural population, with regard to hospitalization level.

Statistical records make it possible to perform such calculations for different types of hospitals (oblast, municipal, rayon, dispensaries, etc.). However, they do not contain data that permit separate determination for the rural and urban population of availability of specialized types of medical care.

* * * * *

The absolute number of polyclinic visits and house calls as well as the conversion per resident are the indices of volume of medical service with reference to ambulatory polyclinic care. To obtain the overall number of visits according to type of institution and specialty, such information must be gathered from several tables of statistical records according to form 90 obl. In the records, the numbers of visits are given in accordance with the following types of institutions: hospital institutions, dispensaries, nonunified ambulatory polyclinics, medical institutions, health centers, stomatological (dental) polyclinics, departments and offices. The distribution of visits according to specialties is given for general medicine, surgery, obstetrics

and gynecology, pediatrics, eye pathology and otolaryngology (according to specialties of dispensaries and analogous special departments of hospitals and polyclinics) and stomatology. As a result, an overall figure is obtained for the number of visits referable to specialties which covers in essence the entire volume of visits referable to ambulatory polyclinic care in urban and rural areas.

The statistical records contain data concerning the percentage of visits paid by the rural population to urban ambulatory polyclinic institutions, according to type of institution but not specialty.

It may be assumed that the percentage of rural patient visits to urban polyclinics is not the same for different specialties and that it is much higher for the narrow specialties than for specialties such as general [internal] medicine, surgery, pediatrics, obstetrics and gynecology.

The statistical records do not contain data about preventive, including dispensary, visits which are included in the overall number of polyclinic visits. This makes it difficult to plan the activities of polyclinic institutions, in connection with the task set forth in the CPSU program of covering the entire population with dispensary supervision. These and other missing data can be supplied by means of using records of therapeutic institutions and primary records on a sampling basis, as well as by means of special scientific research.

Within each specialty in practice and for all specialties as a whole, a certain proportion is formed between the volume of polyclinic care, expressed by the number of visits per resident, and volume of hospital care, expressed in number of bed-days per resident, or, what is more often used in practice, the number of hospital beds per 1,000 population. At different stages of development of public health and in different Union republics, this ratio is not the same, and this is related to a number of causes (number of stipulated staff entities and physicians, feasibility of expanding the bed resources, etc.).

The ratio between number of visits and bed-days depends largely on the structure of the hospital bed resources and number of visits referable to different specialties, since this ratio is different for different specialties. We submit below the number of polyclinic visits and house calls referable to urban therapeutic and preventive institutions per bed-day according to different specialties in 1964:

Stomatology .	13.4	General Medicine	2.8
Otolaryngology	9.0	Surgery	1.8
Ophthalmology . .	7.4	Obstetrics and gynecology	1.4
Dermatovenereology	7.1	Oncology . .	1.0
Neuropathology .	3.3	Phthisiology .	0.8
Pediatrics .	3.1	All specialties .	2.8

Without counting stomatology, the ratio of number of visits to number of bed-days will average 2.4.

* * * * *

Let us now turn to analysis of the activities of the hospital and ambulatory polyclinic network as a whole and according to different specialties. The indices of activity of the hospital bed network are: a) number of days of bed occupancy per year; b) hospitalization time per patient per bed; and c) number of patients serviced by one bed per year (bed turnover).

These indices are computed separately for hospitals in urban and in rural areas following the same method.

In rural areas, the number of days of bed occupancy per year and hospitalization time per patient in the same specialty are lower than in urban settlements. This is due primarily to the difference in groups of patients receiving care in urban and rural hospitals. As a rule, the more serious cases that require more intensive and complex treatment are hospitalized in urban hospitals. The smaller use of rural hospital beds, in spite of the great need for hospital care of the rural population, is also attributable in many cases to the fact that such care is not accessible at certain times of the year (bad roads, snow storms). As for bed turnover, which is the result of interaction of the first two indices, we fail to detect significant differences between the urban and rural hospital index.

Table 16 submits data pertaining to utilization of bed resources of the USSR in urban and rural areas, in 1964.

It is considerably more difficult to analyze the activities of the ambulatory polyclinic network. The unit of measurement of network capability is the number of physician posts referable to ambulatory polyclinic care in the specialties for which office hours are held or for which house calls are made. They include general medicine, pediatrics, obstetrics and gynecology, surgery, phthisiology, dermatovenereology, ophthalmology, otorhinolaryngology, neuropathology and stomatology. However, in the statistical records, the number of physician posts according to specialties is indicated as a whole, including the posts of physicians engaged in hospital and ambulatory care of the people, as well as department heads.

It is not deemed possible to obtain directly from a statistical record the number of physician posts referable to ambulatory polyclinic services. Nor can we obtain directly from these records data pertaining to the work load of physicians with regard to ambulatory polyclinic care in different specialties. The records do enable us to estimate, more or less precisely, the work load of physicians. For this, from the total number of physician posts for each of the above specialties, we must deduct the number of posts referable to hospital care and the number of posts referable to department heads. If we know the number of visits referable to each specialty, we can determine the number of visits per year per physician post.

Table 16
UTILIZATION OF BED RESOURCES IN URBAN AND RURAL AREAS OF THE USSR IN 1964

Specialty	Urban				Rural			
	days of bed occu- pancy	bed occup. per patient	bed turnover	days bed occu- pancy	bed occ. per patient	days bed occu- pancy	bed turnover	
Total	321	13.7	23.4	286	11.1	286	25.8	
breakdown:								
general medicine	343	17.9	19.2	327	12.1	327	27.0	
surgery	339	12.8	26.5	286	10.5	286	27.2	
obstetrics	274	9.1	30.1	182	8.6	182	21.2	
gynecology	345	4.4	78.4	339	4.1	339	82.7	
neurology	334	22.3	15.0	318	16.8	318	18.9	
noninfect. dis., children	320	14.0	22.9	335	9.3	335	36.0	
infect. dis., children	294	17.1	17.2	263	13.9	263	18.9	
tuberculosis, children	308	106.3	2.8	266	102.2	266	2.6	
ophthalmology	316	19.5	16.2	256	22.1	256	11.6	
otorhinolaryngology	311	10.5	29.6	212	8.5	212	24.9	
tuberculosis, adults	307	74.8	4.1	255	72.9	255	3.5	
dermatovenereology	329	22.2	14.8	297	22.3	297	13.3	
infect. dis., adults	290	14.3	20.3	229	13.7	229	16.7	
general	243	9.3	26.1	293	10.0	293	29.3	

For these estimates, we recommend the following method.

1. The number of physician posts occupied is indicated in the pertinent lines in the second column of Table 34 of the report on form 90 obl: "Established and Occupied Physician Posts in Institutions of the Ministry of Health, Broken Down According to Specialties."

2. The number of beds is indicated in Table 6 of the report according to form 90 obl: "Bed Resources in All Medical Hospitals."

3. The number of beds per physician post is indicated in accordance with the staff standards established by orders of the USSR Ministry of Health. We proceed from the premise that physician posts in hospitals are usually completely manned in accordance with the established staff standards. In view of the fact that a minimum and maximum staff standard is indicated by this order with regard to some specialties, we adhere to the mean standard, as indicated in the table of I. I. Rozenfel'd, on page 266 of the textbook, "Public Health Organization in the USSR," edited by Professor N. A. Vinogradov (Moscow, 1962).

4. By dividing the total number of beds by the number of beds per physician post, we obtain the total number of posts referable to hospital care. As can be seen in Table 17, it ranged from 10% of the total number of physician posts with reference to otolaryngology and 11.5%--dermatovenereology, to 37.1%--phthisiology and 34.1%--obstetrics and gynecology.

5. The number of department head posts (for the hospital and polyclinic together) is taken in accordance with the standards set in order No. 282-m. The share of these posts referable to each specialty is computed using the above-mentioned table of I. I. Rozenfel'd.

6. After deducting from the overall number of occupied physician posts the number of posts that are occupied for hospital care and the number of posts referable to department heads, we obtain the number of physician posts referable to ambulatory polyclinic care of the public as of the end of the reported year.

7. The statistical record does not provide the mean annual number of physician posts. We arbitrarily consider the ratio of mean annual number of physician posts equal to the ratio of mean annual number of beds referable to each specialty to the number of beds at year end (Table 16, columns 1 and 2). Thus, we determine the mean annual number of physician posts referable to ambulatory and polyclinic services to the public.

8. The work load per physician post is determined by dividing the total number of visits referable to a given specialty by the mean annual number of physician posts.

We could suggest another variant for calculating posts and physician work loads in the hospital and polyclinic. This variant is suitable for institutions where there is no clear-cut distinction between the work of the hospital and of the polyclinic, and where

Table 17
ESTIMATION OF PHYSICIAN POSTS REFERABLE TO AMBULATORY
POLYCLINIC SERVICES IN USSR CITIES, IN 1964

Specialty	posts occupied in therap.-prophyl. institutions (thous.)	department head posts	beds (thousands)	beds per physician post	hospital care posts (thousands)	ambulatory poly- clinic posts (thous.)	number of visits (millions)	visits per physician post
General medicine	71.4	10.9	260.1	23	11.3	49.2	248.4	5,049
Infectious disease	10.3	1.5	144.9	20	7.3	1.5	---	---
Surgery	41.9	6.3	240.3	23	10.4	25.2	134.0	5,317
Obstet.-gynecology	31.4	4.6	213.1	20	10.7	16.1	90.7	5,634
Pediatrics	56.5	8.4	165.9	18	9.2	38.9	117.0	3,008
Ophthalmology	10.9	1.1	28.6	23	1.2	8.6	67.0	7,791
Otolaryngology	11.0	1.1	25.1	23	1.1	8.8	70.0	7,955
Neuropathology	11.6	1.2	36.9	20	1.8	8.6	40.4	4,698
Phthisiology	19.4	2.0	166.4	23	7.2	10.2	41.7	4,088
Dermatovenereology	8.7	0.9	30.9	30	1.0	6.8	49.9	7,338
Stomatology and dentistry	46.1	4.6	4.1	23	0.2	41.3	25.6	6,198

there is primarily a two-element system of service, such as, for example, at the rural rayon hospitals. We proceed from the premise that all of the work, both in the hospital and polyclinic, is evenly distributed among all physicians in a given specialty. Knowing the number of beds and number of visits referable to the specialty, it is not difficult to compute the mean beds and visits per physician, or more precisely per physician post.

As an example, we submit such an estimate referable to the six main specialties in the USSR for 1964, according to urban and rural rayon hospitals (Table 18).

Table 18 shows that the average work load of physicians does not reach the set standard. This may be the result of seasonal fluctuations of the work load, particularly in the summer months, work days lost due to illness, pregnancy or child birth, work in commissions, incomplete use of wage rates with reference to holding another job by rayon specialists in rural medical districts, and authorized travel for advanced training. This question requires special investigation for the purpose of finding reserves for more rational use of the physician's work time.

The distribution of physician posts referable to polyclinic and hospital care is determined in all of the republics and oblasts for a specific date by means of direct calculation, using a method proposed by the finance and planning administration of the USSR Ministry of Health (see Appendix). In view of the fact that the existing proportions are rather stable, such calculations may be repeated only after a few years. However, the overall number of physician posts must coincide with the number indicated in the statistical record.

The statistical reports contain data about district services to the urban population, which permit us to determine the size of the urban population per therapeutic district (overall population and adult population only), population size per pediatric district (overall population and child population only) and per obstetric-gynecological district (overall population and female population only).

Appendix

Method of Calculating Personnel Posts in Different Branches of Public Health

The number of personnel posts (physicians, paramedical personnel, junior medical personnel, other service personnel) for the reported year, in the form of a plan of the USSR Ministry of Health, can be distributed in the areas of ambulatory polyclinic and hospital care of the urban population when pursuing special estimates concerning the use of posts for these types of care in urban therapeutic and prophylactic institutions.

This work can be pursued on the basis of estimates referable to hospitals (combined and noncombined), including hospitals for veterans of the Patriotic War and dispensaries (with and without hospitals) on the appropriate date of investigating utilization of personnel posts according to the chart (Table 18a) provided in the instructions.

Table 18

ESTIMATION OF WORK LOAD OF PHYSICIAN POSTS IN URBAN AND RURAL
AREAS OF THE USSR ACCORDING TO SPECIALTIES, IN 1964

Specialty	In cities					In rural areas				
	posts occup. in therap. and prophylactic institutions	beds (thousands)	visits (millions)	Work load per physician post		posts occ. in therapeutic & pro- phylactic institutions	beds	visits	Work load per physician post	
				beds	visits				beds	visits
General medicine	71.4	260.1	248.4	3.6	3,479	10.9	142.4	52.3	13.0	4,798
Infectious disease	10.3	144.9	--	14.1	--	1.2	24.8	--	20.7	--
Surgery	41.9	240.3	134.0	5.7	3,198	4.9	44.1	14.3	9.0	2,918
Obstetr.-gynecology	31.4	213.1	90.7	6.8	2,889	3.6	73.5	10.0	20.4	2,778
Pediatrics	56.5	165.9	117.0	2.9	2,071	6.2	47.7	17.4	7.7	2,807
Ophthalmology	10.9	28.6	67.0	2.6	6,147	0.9	4.0	3.1	4.4	3,444
Otolaryngology	11.0	25.1	70.0	2.3	6,363	0.7	0.7	2.2	1.0	3,143
Neuropathology	11.6	36.9	40.4	3.2	3,482	0.6	0.9	1.5	1.5	2,500
Phthisiology	19.4	166.4	41.7	8.6	2,150	3.1	56.0	4.4	18.1	1,420
Dermatovenereology	8.7	30.9	49.9	3.6	5,735	0.8	1.9	3.5	2.4	4,725
Stomatology & dentistry	41.6	4.1	165.7	0.1	3,595	10.1	--	25.6	--	2,535

Table 18a

	Number of posts occupied in medical hospital institutions (unified and nonunified hospitals, maternity homes) and dispensaries (with and without hospitals)	Personnel used in:	
		polyclinic walk-in office, consultations, house calls	hospital, maternity home, dispensary
1	2	3	4
Total breakdown: physician posts (including dentists) paramedical posts junior medical personnel posts other personnel posts (including pharmacists)			

This estimate should not include nonunified medical ambulatory institutions, independent health centers, independent stomatological and dental institutions, independent first aid institutions, neuro-psychiatric and psychiatric hospitals.

In column 2, in line with "total" is indicated the number of occupied posts on the date corresponding to the report of the institution (1 "a," 1 "g," etc.).

The number of occupied posts is distributed in columns 3 and 4, according to where the post was used on the day of the study according to work schedule: polyclinic office hours and house calls (column 3) or work in the hospital (column 4).

When the work of physicians is organized using the alternation system, the physician posts are referred to the appropriate column of work to either the polyclinic or hospital area.

If work at the institution is set up in accordance with a two-link system, the post of physician working in the hospital and polyclinic is divided in half and distributed with 0.5 post in columns 3 and 4. If the physician works in accordance with a three-link [unit] system, the post he occupies (or posts) is divided by 3 proportionately to the number of hours spent on each work element and the appropriate part is added to each column (rounded out to 0.25, 0.5, 0.75 of a post).

Table 18b

	Summary, column 2 line 1	Report form 90 obl., lines 1 + 3 column 2
Total		
Physician posts (including dentists)	2	4 + 6
Paramedical personnel posts	3	8
Junior medical personnel posts	4	11
Other personnel posts (in- cluding pharmacists)	5	10 + 12

Occupancy of posts referable to the therapeutic and ancillary area (laboratory, x-ray, physiotherapy offices, etc.) for all personnel groups should be indicated in columns 3 and 4, depending on the volume of work (share) referable to servicing ambulatory or hospitalized patients.

For example, a laboratory performs (an average) of 200 clinical tests per day including 150 for ambulatory patients and 50 for hospitalized ones. In this case, 0.75 of the posts of laboratory personnel in each group should be put in column 3, and 0.25 for each group in column 4.

Occupied posts at emergency and first aid stations (departments), blood transfusion stations (departments) that are a part of the medical hospital institutions, as well as offices of records and statistics are indicated in column 3.

Occupied posts in hospital pharmacies and pathology departments are shown in column 4.

The posts of department heads are put in column 4; if the department head post is also established for the polyclinic, it should be shown accordingly in column 3.

The posts of chief physicians, with the exception of those in dispensaries that do not have hospitals, are entered in column 4.

The post of deputy physician, if there is only one, is entered in column 3; if there are two these are entered in columns 3 and 4.

The post of deputy chief physician dealing with expert determination of disability is referred to column 3 (with the exception of non-unified hospitals).

If, for some reason, an employee referable to an occupied post was absent on the date for which the estimate was made (due to illness, leave, business trip, temporary transfer to another area of work because of an epidemiological problem, etc.), the post would be entered in the column in which it should be used according to the work schedule for that day. In the case of lengthy absence (courses for specialization,

advanced training, etc.), the post that this employee occupies should be entered in column 2, as well as in decoded form in the column referable to the use to which this post is put for most of the year. The sum of columns 3 and 4 should equal column 2.

When summarizing estimated data for a city, oblast, or republic, one should bear in mind that they should correspond to the data in Table 35, of report form 90 obl. The number of occupied posts according to personnel groups should correspond as shown in Table 18b.

Tables 18, 19 and 20 are auxiliary for the determination of standards with regard to the number of posts in different areas of public health, as well as for calculation of the actual availability of such posts to the urban population. Using these tables, the indices are obtained for the reported, current and planned years as shown in Table 17.

The overall requirements as to personnel posts referable to therapeutic and prophylactic work in cities, within the balance of personnel, should include additionally a certain number of posts corresponding to the volume of ambulatory polyclinic and hospital care rendered by urban institutions to the rural population.

Adjustment for rural population services in cities referable to ambulatory polyclinic care (line 8 of table 15) will depend on the share of ambulatory visits in urban institutions that are paid by rural residents (line 2, Table 16).

Hospital care in the cities (line 6, Table 15) includes the number of personnel posts to service the urban population (line 4, Table 15) and personnel posts to service the rural population in cities (line 5, Table 15).

The number of personnel posts referable to hospital care of the rural population in cities depends on the extent to which the urban hospital network is used by the rural population (line 4, Table 16).

The number of posts referable to therapeutic and preventive care of the urban population alone, which characterized the actual number of posts (line 9, Table 15) consists of the number of personnel posts referable to ambulatory polyclinic care (line 1, Table 15) and hospital care (line 4, Table 15). This number corresponds to the index of availability of therapeutic and preventive services to the urban population (line 6, Table 16).

Therapeutic and preventive services for the rural population (line 10, Table 15) consists of the number of posts referable to ambulatory polyclinic care of the rural population in cities (line 2, Table 15), hospital services in the urban hospitals for patients from rural areas (line 5, Table 15) and the number of personnel posts referable to therapeutic and preventive services in rural areas (line 8, Table 15). The number of personnel posts referable to therapeutic and preventive services for the rural population (line 10, Table 15) includes posts at feldsher institutions in rural areas.

Availability to the rural population of personnel posts referable to therapeutic and preventive work is indicated in line 7 of Table 16.

One should use the data obtained from a census of public health institutions as of 1 October 1963 to check the distribution of physician posts in the area of therapy and prophylaxis between ambulatory polyclinic and hospital services.

FOOTNOTES REFERRED TO IN CHAPTER 3

1. NARODNOYE KHOZYAYSTVO SSSR V 1965 G, Moscow, p. 42, 1966.
2. Ibid, p. 7.
3. Ibid, pp. 14-20.
4. MATERIALY XXIII S"YEZDA KPSS, p. 265, 1966.
5. NARODNOYE KHOZYAYSTVO SSSR V 1965 G., Moscow, p. 45, 1966.
6. SZ, No. 34, p. 309, 1936.

Chapter 4

FORECASTING AND TASKS INVOLVED IN LOWERING MORBIDITY

General Patterns of Decline of Morbidity in the USSR

It is very important to long-term public health planning, during this period of full-fledged building of a communist society, to have scientific substantiation of the morbidity forecast and to specify the tasks set forth in the CPSU program with regard to prevention and the decisive reduction of morbidity and the eradication of mass infectious diseases.

In the USSR, from the very first days that the working class took over political power, the prerequisites were to lower the morbidity and mortality that were considerably higher in tsarist Russia than in most capitalist countries. Drastic improvement of the poor health situation which was the legacy from tsarist Russia was a difficult task confronting Soviet public health, which was not yet strong. To this were added the severe consequences of the imperialistic and civil wars. In the transitional period, the nature of pathology was determined largely by the mixed nature of our society.

During the early years of Soviet power considerable results were obtained in the fight against epidemics. However, the sites of typhus and other epidemic diseases were not eradicated and they continued to create the threat of new outbreaks. The incidence of malaria rose and involved areas that had previously been free of this disease. A broad offensive was initiated against such social diseases as tuberculosis and venereal disease, and there was a well-developed network of pediatric consultation centers that organized broad control of infant mortality. Teams were sent to different national regions to fight against syphilis, trachoma, skin disease and local pathology.

Even in the first decade of Soviet power, there were distinct and positive changes in the health status of the people, and these were the result of improved material well-being and improved cultural standards of the people against the back-drop of the building of a socialist society, the development of medical care accessible to all and free of cost, as well as of the preventive nature of Soviet public health.

In the 50 years of existence of Soviet power, some brilliant results have been achieved with regard to improving the public health standards, lowering morbidity, a sharp lowering of overall and infant mortality, and longer mean life expectancy. These results were achieved in spite of the fact that this period was full of major difficulties, and the Soviet people made great sacrifices during the Civil and Great Patriotic wars to protect the freedom and independence of their homeland and for the victory of socialism.

The USSR advanced to the level of the progressive countries of the world with regard to the main indices of public health, and for some indices it was even higher than this level.

On the basis of these achievements, the Party and government have made an appeal for a continued and decisive offensive against disease. The decree issued by the CC CPSU and USSR Council of Ministers on 14 January 1960 set forth the task of eradicating diphtheria, tularemia, poliomyelitis and a number of local diseases (malaria, ankylostomiasis, trachoma and others) and of sharply lowering the incidence of typhoid fever, pertussis, ascariasis, acute intestinal infections and brucellosis. At the same time, medical science was faced with the task of finding ways and means of effectively treating and preventing influenza, sore throat, measles, epidemic hepatitis, intestinal infections and other diseases, further lowering infant mortality, and preventing morbidity among workers in new branches of industry.

The Communist Party and Soviet government have always devoted much attention to the problems pertaining to the fight for lowering mass scale and most life-endangering diseases. This was reflected in the most important Party documents. The CPSU program provided for broad measures directed toward "prevention and decisive reduction in incidence of diseases, eradication of mass infectious diseases, and further increase of life expectancy" (1). In the area of medical science, the CPSU program spelled out the task of "concentrating efforts toward discovering the means of preventing and overcoming such diseases as cancer, viral, cardiovascular and other diseases dangerous to human life" (2).

The directives of the 23rd CPSU Congress for the 5-year plan of development of the USSR national economy in 1966-1970 provided for "further development of scientific research in the field of medicine, investigation of human physiology and pathology for the purposes of preventing and treating malignant neoplasms, cardiovascular, viral and other diseases" (3). These same directives indicated: "there must be significant expansion of production and better use of medical instruments, apparatus, equipment and supplies, drugs, particularly effective medication for the prevention and treatment of cardiovascular and mental disease, tuberculosis, malignant neoplasms, infectious and viral diseases" (4).

It is only in a socialist society that tasks referable to lowering the morbidity rate are the subject of concern of the government, that measures to lower morbidity are planned and that they are the main substance of long-term and annual public health plans. Public health plans are purposeful plans directed toward comprehensive strengthening of the health of Soviet people, prevention of diseases, lowering morbidity and eradicating the diseases for which this task is feasible with the present state of international and Soviet medical science. This compels us to analyze the question of forecasting morbidity and tasks involved in lowering it in long-term public health planning.

Infectious and Parasitic Diseases

Considerable advances have been made in recent years with respect to further lowering of infectious pathology. Malaria has been eradicated. The incidence of polio has dropped by 15 times and that of diphtheria by 31 times between 1959 and 1965. Not a single case of polio or diphtheria has been recorded in the last 2-3 years in some republics, oblasts and large cities. After inoculations were begun in 1961, by 1966 the incidence of pertussis had dropped by 3 times. There were also some advances with regard to lowering the incidence of typhoid fever, dysentery and certain other intestinal infections (according to V. D. Timakov in the collection entitled "Pressing Problems of Social Hygiene and Public Health Organization," Moscow, page 55, 1967).

The decree of the CC CPSU and USSR Council of Ministers issued on 14 January 1960, and directives in the program of the CPSU pertaining to lowering the incidence and eradication of mass infectious diseases demanded that public health agencies and medical workers develop practical measures to implement this. Scientific research was published dealing with the theoretical aspects of this problem and generalization of practical experience. There was a significant increase in scientific substantiation of planned measures directed toward lowering the incidence of infectious disease and eradicating some of them. This question was the subject of a debate in the press, as well as at the 14th All-Union Congress of Epidemiologists and Infectious Disease Specialists in 1964, as well as the 20th Session of the USSR Academy of Medical Sciences in the same year. The chief conclusions derived from this debate can be formulated in the following theses.

1. Systematic lowering of the incidence of mass infectious diseases and eradication of some diseases in our country constitute an objective and valid process determined by the consistent improvement of material well-being and cultural standards of the Soviet people, the present status of medical science, the preventive direction of Soviet public health, and the purposeful planned measures of the Communist Party and Soviet government.

2. There must be clear-cut formulation of the ultimate goals and immediate tasks in this direction, in planning measures to lower and eradicate infectious diseases. In this regard, it is particularly pressing to define correctly the concept of "eradication of infectious disease." As a result of a debate pursued by epidemiologists, the following definition was adopted; it was proposed by Professor L. V. Gromashevskiy, active member of the USSR Academy of Medical Sciences, at the 20th Session of the USSR AMS: "the term, 'eradication of infectious disease,' signifies total elimination of a given communicable disease within the boundaries of a country (state), several countries or the entire globe, associated with total elimination or disappearance within the relevant territories of the pathogens of this disease, which rules out any possibility of the eradicated infection occurring in any form among the inhabitants of a given territory, unless the pathogen is brought in from elsewhere" (5).

In this definition, "eradication" coincides in meaning with the term "devastation," suggested in the 1940's by Academician K. I. Skryabin with reference to parasitic disease and signifying "destruction of the parasite by available means at all stages of its development and in all forms of its existence" (6).

Not only is such interpretation scientifically correct, it is of great practical significance, since the retention of even a negligible number of infectious diseases or presence of infection carriers in the absence of diseases does not preclude the danger of an epidemic outbreak and requires that the entire system of preventive epidemiological measures be on the alert. In those cases when objective conditions and the level of our scientific knowledge do not permit formulation of the task of eradicating the infection, one can set forth more limited tasks such as, for example, lowering or sharply lowering morbidity, lowering morbidity by approximately a given number of times or to a specific level, reducing its incidence to sporadic cases, limiting the spread of disease in specific areas or among specific population groups. One cannot consider as valid formulations terms such as "essential eradication," "virtual eradication," or "eradication as a mass disease."

Some epidemiologists (I. I. Yelkin, V. A. Bashenin) believe that in an enormous country such as the Soviet Union, with its wide diversity of geographic and epidemiological conditions in different regions, one can raise the question of eradicating some infectious diseases on the scale of a Union republic, oblast, or major city. This could apply in particular to pathology that is related to endemic sites. L. V. Gromashhevskiy indicates that eradication of filariasis (dracunculiasis) in Bukhara would actually be tantamount to eradicating it in the entire Soviet Union, since Bukhara was the only endemic site of this disease in the entire country.

3. Of the three moving forces involved in an epidemic process (source of infection, mechanism of transmission of infection, susceptibility of the people), eradication of infectious disease or a sharp reduction of its incidence can be reached by affecting one or two of the decisive elements. For example, smallpox was eradicated in our country by means of immunization of the entire population, i.e., by treating the third element; to eradicate malaria, it was necessary to destroy the malaria mosquito in all forms of its development and to cure all patients with malaria, i.e., treatment was addressed to the first two elements of the epidemic process. These theses are very important to development of the main strategic line in the fight to lower the incidence of a specific infectious disease and to eradicate it.

4. A most important prerequisite for lowering and eradicating infections is implementation of broad ameliorative and sociohygienic measures. Tuberculosis cannot be eradicated until the people are provided with good housing, whereas without the municipal amenities dysentery and other intestinal infections cannot be eradicated. However, their role consists of treating the immediate moving forces of the epidemic process. Specific purposeful measures that are implemented with due consideration of the epidemiological patterns of distribution of an infectious disease are of decisive importance in eradicating it.

5. The task of eradicating some infection or other must be performed in several stages, at each of which specific special tasks, procedures and methods of controlling infection are promoted to first place. For example, the methods, organizational and tactical procedures are not the same at the level of epidemic spread of infection, at the level of significant reduction thereof and at the level of sporadic cases of disease, with regard to further lowering its incidence and eradicating it. One must bear in mind the fact that the actual course of an epidemic process and the clinical forms of disease undergo consistent changes in the course of lowering the morbidity rate.

6. At the present time, in view of the fact that a sharp reduction has been obtained with reference to incidence of a number of infectious diseases, the pressing problem is to plan for further lowering of the morbidity rate to the extent of total eradication of the infection. Such tasks as preventing the occurrence of new cases of illness, control of carriers with reference to infections where they can exist, and maintaining preventive measures at their proper level, measures to eradicate diseases in different geographic parts of the country and in the age groups where they are the most widespread are advanced to the fore. Epidemiological science is faced with the problem of investigating the patterns of distribution of infection under these conditions and of substantiating measures to eradicate it definitively. There must be epidemiological substantiation of planning with respect to measures to lower the incidence of infectious diseases and eradicating them, and it should be done with the immediate participation of epidemiological scientific institutions and the epidemiological scientific community.

The above theses can be illustrated with reference to several important infectious diseases.

The measures involved in the control of malaria which were implemented on the basis of the appropriate government decrees and which were reflected in the annual and long-term national economic plans serve as an example of scientifically substantiated planned measures to lower the incidence of and to eradicate infectious disease. They included the following elements: a) tasks referable to development of a network of malaria-control institutions (institutes, stations and centers); b) measures to train physicians, paramedical personnel and individuals in the mass professions with reference to control of malaria; c) itemized lists of the major hydraulic engineering projects dealing with control of malaria implemented by economic ministries and agencies; d) tasks pertaining to clearing the area of larvae and flying forms of malaria mosquitoes (purifying reservoirs, malaria-control ameliorative measures, dusting reservoirs and swampy areas around populated settlements, including the use of sanitary aircraft, DDT); e) therapeutic and preventive quinine treatment for the inhabitants of areas stricken by malaria; development of production of domestic antimalaria preparations; and f) supplying the malaria-control network with the necessary chemicals and apparatus.

This was a well thought-out comprehensive State system of malaria control measures, the implementation of which was relegated not only to public health bodies but also other agencies. This system of measures was feasible thanks to exact knowledge of the epidemiology of malaria and the effectiveness of preventive measures that were being administered. Of chief significance in this plan were measures directed toward eradication of the source of infection (curing all malaria patients) and mechanism of transmission thereof (destruction of malaria mosquitoes in all forms of their existence). Even in 1960, only a few hundred cases of malaria were recorded in the USSR, of which a significant number were brought in from abroad. At present, malaria is not present in the USSR.

Present scientific conceptions of the epidemiology of diphtheria, the availability of such a powerful disease control factor as vaccination and revaccination of the child population with diphtheria toxoid, and the sharp reduction of the incidence of diphtheria in the USSR that has already been reached, make it possible to formulate the task of eradicating diphtheria within the next few years. Diphtheria is one of the anthroponotic diseases; an individual infected with diphtheria, suffering from diphtheria or a carrier are the only sources. Some difficulties are involved in eradicating diphtheria because of the existence of discrete and mild forms of diphtheria, as well as diphtheria carriers, and the latter may be either individuals recovering from this disease or healthy individuals.

However, one should not overestimate the epidemiological significance of carriers with reference to diphtheria. Epidemiological and statistical data indicate that the dynamics of diphtheria carriers is in a causative relationship to morbidity, so that there is an increase in carriers following an increase in the incidence of diphtheria, and vice versa.

Thus, in the presence of sporadic cases of disease, the further lowering of incidence and the eradication of morbidity are the main and chief means of eradicating carriers.

A. B. Aleksanyan (7) indicates that during the period of eradicating morbidity there will be no convalescent carriers, whereas the epidemiologically less dangerous carriers, healthy and immune people, will present brief excretion of the pathogen and they will cease to be carriers within a short period of time.

The problem of eradicating diphtheria can be resolved in three stages. The first stage is to lower the incidence of diphtheria to the level of a few sporadic cases; the second stage is to eradicate morbidity against a background of systematic maintenance of an optimum level of group immunity among the child population; the third stage is eradication of diphtheria as a nosological form on the territory of our country, and this involves eradication of the pathogen as a biological species (M. I. Khazanov).

Mass immunization of the public is the principal means of lowering the incidence of and eradicating other infectious diseases transmitted through air and droplets, since direct depression of the

mechanism of transmission of infection is impossible in such diseases. This wide group of diseases includes all of the so-called childhood infections, as well as influenza and acute catarrh of the upper respiratory tract. Mass immunization, in the form of compulsory smallpox vaccinations, was responsible for eradicating this disease from the USSR. The development and broad practical use of live polio vaccine has resulted in a sharp reduction of the incidence of this disease and is leading to eradication thereof. The wide use of vaccines against pertussis, as well as the polyvalent pertussis-diphtheria vaccine have resulted in a sharp decline of pertussis. Experiments are in progress to develop a vaccine against measles, but reactivity to it is still too high for it to be adopted in practice.

We do not yet have radical means of controlling influenza, but experience shows that general hygienic measures, as well as specific prophylaxis, present some effectiveness. The consistent improvement of the material well-being of the people in our country, the solution to the housing problem, the planned and systematic implementation of State measures to control tuberculosis make it possible to raise the problem of eradicating influenza in our long-term plan.

Broad measures have in recent years been implemented to further lower the incidence of tuberculosis. Better detection of cases of tuberculosis as a result of mass fluorography of the public and improved diagnostic work in the ambulatory polyclinic network have resulted in fuller records of patients with tuberculosis and prompt performance of the necessary therapeutic and preventive measures. Fewer cases in the advanced stage of this disease are being picked up.

Since 1962, we have adopted the intracutaneous method of inoculation and reinoculation against tuberculosis. Children's tuberculosis sanatoriums and health-improving institutions have been deployed in a wide network.

The distinction of tuberculosis as a chronic infectious disease is that the groups that are stricken are the main source of infection and present a constant danger to those around them. For this reason, radical treatment of patients with tuberculosis is not only of health-improving significance, but also enormous epidemiological importance, as it permits eradication of the chief source of tuberculosis infection. It is now considered established that treatment of a tuberculosis patient in a hospital and sanatorium for 9-12 months results in lasting elimination of the bacillus and total cure of the tuberculous process in most cases. For this reason, increasing the number of hospital and sanatorium beds and the effectiveness of hospital and sanatorium care play the decisive role in controlling tuberculosis.

There has been a considerable increase in number of hospital beds for tuberculosis cases. There has also been an increase in the number of phthisiological beds in sanatoriums. This has made it possible to extend duration of treatment for patients with tuberculosis, whereas in sanatoriums it has become possible to determine duration of therapy on an individual basis. Changes in labor and insurance legislation

have also aided in implementing planned and prolonged therapy of patients with tuberculosis, in accordance with the requirements of modern medical science. There has been improvement in supplying the public with effective antituberculosis preparations, the method of chemotherapy has been perfected, and surgical methods of treatment are used on a wider scale. The dispensary system of therapeutic and preventive measures dealing with the control of tuberculosis and the statistics based on this system have equipped us with enough data to assess the dynamics of incidence of tuberculosis in the last period of time, so that we can determine the prospects of further decline.

Analysis of these statistics leads us to the following conclusions.

All of the indices referable to tuberculosis have been declining in the last few years, and the most significant decline is referable to mortality, somewhat less to incidence, and even slower decline in groups of patients who are on the records of therapeutic and prophylactic institutions. And this is quite logical, since decline of morbidity rate is compensated, to some extent, by improved detection of tuberculosis patients due to broader fluorography and better diagnostic work of polyclinic institutions. With such a morbidity level, decline of mortality rate as a result of greater effectiveness of treatment leads to accumulation of patients groups who still do not achieve a total and radical cure.

As a result of mass administration of BCG inoculations and fewer contacts with bacillary patients, the number of which is consistently diminishing, as well as improved housing, the incidence of tuberculosis is declining first of all among the child population.

The mean age of tuberculosis patients is advancing; tuberculosis has "aged."

The clinical signs of tuberculosis have changed. There has been a sharp decrease in the incidence and severity of the exudative forms of tuberculosis of the lungs. Fibrocavernous tuberculosis of the lungs has become the typical form.

The 7th All-Union Congress of Phthisiologists, which convened in 1964, noted in its resolution that there has been a more than 50% decrease in the incidence of tuberculosis in the last 10 years in different cities of the Soviet Union. It was established that the rate of decline of incidence of tuberculosis and of mortality due to this disease has accelerated, as compared to previous years.

In its decisions, the Congress indicated that for speedy eradication of tuberculosis it is imperative, without diminishing preventive measures, to improve decisively the detection of tuberculosis cases and treatment thereof. It has become of decisive epidemiological significance to obtain a cure in cases of tuberculosis, and this is a most important index of the effectiveness of fighting against this disease. At the present time, the attentions and efforts of all anti-tuberculosis institutions should be directed toward curing all new

cases of tuberculosis. There should be broad development of chemoprophylaxis among individuals who have been in contact with patients suffering from the open form of tuberculosis.

Against the background of a significant decline in incidence of tuberculosis, there is also a substantial change in the content and forms of work of tuberculosis-control institutions. The large growth of the network of hospital and sanatorium beds, the longer duration of hospital and sanatorium treatment are leading to a significant increase in share of such forms of therapeutic and preventive care. The differences between the sanatorium and the hospital treatment of patients with tuberculosis are disappearing. For this reason, as well as the overall decrease in groups of tuberculosis patients, even now the volume of therapeutic work done at tuberculosis dispensaries is diminishing in some areas. Under such conditions, dispensary work planning should be directed toward implementation of preventive and organizational measures to strengthen the results obtained and to aim toward further lowering of the incidence of tuberculosis. Dispensaries should devote attention to active observation of specific population groups (group of infected children, individuals who have been in contact with patients suffering from an active form of tuberculosis; patients with chronic forms of tuberculosis who excrete the microbacteria; essentially healthy individuals who have been removed from the dispensary rolls because of recovery; and individuals with lung pathology who are sick for long periods of time and frequently).

Supplying tuberculosis dispensaries with qualified personnel and a high level of technical equipment increases significantly their role in organizing the prompt detection of tuberculosis, establishing the time of elimination of the bacillus and clinical cure, and in the differential diagnostics of lung disease. Organization and control of BCG inoculations, mass fluorography and roentgenological examinations constitute an important task for the tuberculosis-control dispensaries.

At this stage, the tuberculosis dispensaries must intensify their contact with the network of hospitals and polyclinics, children's institutions and maternity homes, and sanitary and epidemiological stations, with which they should pursue comprehensive ameliorative measures in infectious sites. Depending on specific conditions, different levels of morbidity will be formed in different republics, oblasts, cities and rayons. This means that there must be a specific approach to planning therapeutic and preventive measures dealing with the control of tuberculosis. Planning of the number of beds for tuberculosis cases should not be based on mean standards; rather, according to the actual number of patients (with due consideration of their composition as to age and localization of the tuberculous process). When planning the network and size of the tuberculosis-control dispensaries, one should take into consideration, along with number of visits, the entire volume of their preventive and organizational-methodological activities.

The level of availability of hospital beds for tuberculosis patients makes it possible to hospitalize such patients for the time

required to obtain a complete and lasting recovery. Recovery of the main groups of patients with tuberculosis would be tantamount to eradication of the source of infection, and it would be of decisive epidemiological significance.

In the future, the network of hospital and sanatorium beds for the treatment of tuberculosis patients will begin to be closed down gradually and switched to other purposes. Dispensary forms of work are moving to first place. The antituberculosis organization is faced with the task of detecting the individual sites of infection that still remain, observing individuals discharged from hospitals and sanatoriums after recovery, implementation of specific prophylaxis directed toward prevention of new cases of this disease, and radical treatment of the remaining groups of patients, primarily those with persistent chronic forms of tuberculosis. It will be necessary to turn to differentiated care of different regions and population groups.

The situation is different with regard to means of bringing about a decline and eradication of the most widespread disease in the group of intestinal infections--dysentery. There are several difficulties that do not make it possible, at this stage, to set the task of eradicating this disease. While, relatively recently, many cases of dysentery have been diagnosed as colitis and simple diarrhea, at present, because of the improved quality of bacteriological diagnostics, the dysenteric nature of a considerable number of such cases is being identified more and more often. With regard to clinical signs of dysentery, we observe a turn toward prevalence to mild, atypical forms and those that are difficult to identify. Evidently this is attributable to the broad use of sulfanilamides and antibiotics, as well as a change in the pathogens: in recent times, the Grigor'yev-Shig bacillus, which induces more severe forms of dysentery, has been replaced by Flexner's bacillus and other pathogens that elicit milder forms.

To date, effective specific therapy ensuring a sterilizing effect has not been found, and yet this is needed to decontaminate the source of infection. We have as yet no reliable means of specific immunization of the public. Still unclear are several problems of the epidemiology of dysentery: predominant involvement of the child population, causes of change to chronic form of this disease, and the etiology of diarrhea of nondysenteric nature that usually accompanies rises in incidence of dysentery.

In spite of all these difficulties, our knowledge of the epidemiological patterns of distribution of dysentery provide some reliable clues that can be directed toward the control of this disease. The main task is to depress the mechanism of transmission of infection in the epidemiological chain. L. V. Gromashevskiy proved the leading role of the "fly factor" in the epidemiology of dysentery. This theory also provides a rather satisfactory explanation of the very nature of spread of this infection and its seasonal rises. It also points to the main directions with respect to the control of dysentery. Eradication of the fly factor in areas where it was present eliminated the seasonal rises in incidence of dysentery and the spread of the disease occurred more uniformly and diffusely via the usual contact method.

Development of municipal amenities and elimination of crowded settlements, installation of sewers in cities and the latest methods of removing solid waste, eradication of flies in areas where they hatch and, along with this, further raising of the sanitary standards of the public justify formulation of the task of sharply lowering the incidence of dysentery.

Soviet public health has made considerable strides in the fight to eradicate and lower the incidence of parasitic disease. Eradication of malaria from the USSR is an excellent example of the effectiveness of the planned State measures to control parasitic disease. Dracunculiasis (filariasis), which is widespread in the republics of Central Asia, has also been eradicated.

Helminthiasis make up a very important group of parasitic diseases. As far back as the 1940's, Academician K. I. Skryabin voiced the idea that it was feasible and necessary to raise the problem of exterminating some types of helminths; i.e., eradicating them completely as a zoological species over extensive territories or throughout the Soviet Union. The feasibility of this task is determined by the fact that most helminths are obligate parasites; i.e., they cannot undergo a full cycle of development in the environment and they must pass the organism of an intermediate or final host, and for human helminths man is such a host. The principal means of eradicating or considerably lowering the incidence of specific types of helminthiasis should be determined in accordance with the epidemiological patterns of helminth invasions. The measures to eradicate helminthiasis must be complex, including destruction of parasite eggs in the environment, deworming stricken population groups, improving sanitary conditions and implementing preventive measures in agriculture, personal hygiene and health education. Mass deworming of the inhabitants of areas stricken by taeniasis and diphyllorhynchiasis, as well as the decontamination of helminth larvae in the tissues of intermediate vectors (cows, pigs, fish) used as human food are of prime significance in the control of these diseases. The work of V. P. Pod'yapol'skaya in Kirovskaya Oblast proved the feasibility of eradicating taeniasis, and this can be reached by screening groups exposed to the danger of invasion and mass deworming of those stricken, in conjunction with measures pertaining to veterinary and sanitary inspection. A considerable decline of ankylostomiasis and partial eradication thereof from invasion sites have been obtained. This type of helminthiasis should also be eradicated within the immediate future.

Of prime significance in the control of ascaridiasis is implementation of measures pertaining to sanitary amenities and the destruction of helminth eggs in the environment, as well as decontamination of fruit and vegetables from helminth eggs. The technical improvement of socialized agriculture, particularly the composting of fertilizers which is one of the most important sources of invasion, is very important in the control of ascaridiasis.

Even now, thanks to the persistent use of antihelminth measures, a significant decline of ascaridiasis has been obtained in some areas.

In the USSR, a planned fight against helminthiasis is being waged, headed by the Institute of Medical Parasitology. As a result of persistent and stubborn work on the part of the parasitological organization and general medical network, there was a 3.5-fold decline in the overall incidence of helminthiasis in the USSR between 1950 and 1965. Between 1960 and 1965, there was a 3.3-fold decline in incidence of taeniorhynchus invasion, a 1.45-fold decline in ascariidiasis; in republics with the highest incidence of ankylostomiasis, incidence thereof has shown a 2.9-fold decline in Georgian SSR, 1.9-fold decline in Azerbaydzhan SSR, and 1.5-fold decline in Turkmen SSR. There was also a broad struggle against other helminthiasis. The most important method was mass screening of the population, particularly in areas with widespread helminth pathology, followed by deworming. This work is being pursued on a scale that has no equal in any other country of the world (8).

The chief objectives in the 5-year plan for 1966-1970 are to arrest the new cases of ankylostomiasis, to reduce sharply, to isolated cases, the incidence of taeniorhynchus infection, to obtain a persistent decline of the incidence of ascariidiasis to 50% of the 1965 level, to lower the incidence of hymenolepiasis in organized child groups by 1.5-2 times; to pick up and to treat patients with other types of helminthiasis, as well as to decontaminate involved sites.

Even broader mass screening will be pursued to detect helminthiasis among the people of the USSR and to implement preventive and therapeutic measures.

In view of the wide differences in levels and structure of helminthiasis in different geographic parts of the country, planning of measures to control it in each republic and oblast should be pursued with due consideration of local distinctions.

Endogenous Infections

Infectious pathology, the pathogens of which are bacteria or viruses that usually inhabit the surface of the skin, mucosa and other organs, and that gain pathogenic significance under specific conditions, constitute a large group. These conditions may be overcooling, impaired integrity of skin barriers, weakening of immune properties of the organism as a result of dietary and metabolic disturbances, prior illness, etc. This group of diseases constitutes about 30% of the overall morbidity.

I. V. Davydovskiy furnishes the following definition of these infections, which he calls endogenous.

"Endogenous forms (autoinfection) occur due to the organism's own microflora (of the skin, respiratory and digestive tract, conjunctiva, external reproductive organs) due to disturbances of regulatory systems that provide for normal forms of symbiosis....

"The mouth, tonsils, appendix, colon, conjunctiva, the bronchial tree and urinary tract are the most important parts of our body where processes of physiological symbiosis take place and where autoinfectious processes develop. The corresponding nomenclature would be: nasopharyngitis, tonsillitis, appendicitis, colitis (including dysentery), bronchitis, bronchopneumonia, lobar pneumonia, cystitis, cystopyelonephritis, conjunctivitis, etc. Autoinfections include most types of dermatitis, pustulous skin lesions, furuncles, carbuncles, otitis, cholecystitis, osteomyelitis, postpartum endomyometritis, and many forms of sepsis, in particular cryptogenic sepsis" (9).

The diseases that I. V. Davydovskiy refers to as endogenous infections are designated by epidemiologists as diseases that are caused by conditionally pathogenic pathogens. In this regard, L. V. Gromashevskiy writes: "There may be parasitic organisms in the human body that present most of the signs inherent to pathogenic parasites or pathogens of specific infectious diseases. However, their presence is not associated with development of a pathological infectious process until a certain sum of additional conditions is created that have not yet been fully identified by modern science. Nevertheless, this latter circumstance did not prevent naming this category of organisms 'conditionally pathogenic....' The pathogenesis of this phenomenon remains unidentified, unless we consider that the thesis concerning 'change in the reactivity of the organism' (10) solves the problem."

As we see, L. V. Gromashevskiy is much more reserved in evaluating the place and role of such diseases with their distinctive and little-studied pathogenesis. The range of pathogens that he mentions as examples of conditionally pathogenic ones is considerably narrower than that given by I. V. Davydovskiy.

The sociohygienic significance of endogenous infections is unquestionable, and serious attention should be given to measures aimed at lowering the morbidity referable to this group. They occupy a large place in overall morbidity and in the volume of therapeutic, particularly ambulatory polyclinic care. Among them there are quite a few serious diseases dangerous to life, whereas such diseases as chronic tonsillitis, sore throat, pyogenic pathology of the teeth and mouth are often the source of severe cardiovascular and septic complications. In addition, most endogenous infections are directly related, with regard to etiology, to sociohygienic living conditions (low sanitary standards, unsatisfactory sanitary conditions at work and at home, irrational diet, irrational work and leisure regimen), and measures to lower their incidence should be primarily sociohygienic in direction.

I. V. Davydovskiy calls endogenous infections the "principal infections of the present and future." "It is important to indicate," writes I. V. Davydovskiy, "that expressly endogenous infections prevail more and more from year to year as compared to others (pneumonia staphylococcal, streptococcal, colibacillus, fungus and many other infections)" (11).

Table 18c

	Number of cases	
	per 1,000 <u>population</u>	<u>% of total</u>
Diseases of ear, nose and throat (including sore throat [tonsillitis], without acute catarrh of upper respiratory tract)	137.3	39.3
Pathology of gastrointestinal tract	64.9	18.0
Pathology of the skin	55.0	15.8
Pathology of the respiratory tract	43.4	12.4
Conjunctivitis	33.3	9.5
Pathology of genitourinary organs	<u>17.1</u>	<u>5.0</u>
TOTALS	349.0	100.0

The structure of endogenous infections (according to the data for the town of Ivanovo in 1955) consists of the following [see Table 18c] (only the nosological forms referable to this group were considered).

We must discuss in particular the question of specific and non-specific measures to control such diseases. Specific prophylaxis has demonstrated its high effectiveness in the struggle to eradicate and lower the incidence of a number of infectious diseases. It may be a question of continued development and refinement of methods of specific prophylaxis, broadening the range of diseases for which it is practiced, using it in the control of endogenous infections.

In addition to this, the broad scope of measures to improve the environment and those referable to physical training of young people, new data of modern science pertaining to interaction between numerous factors on which different diseases are based--the polybacterial etiology of a number of exogenous and particularly endogenous infections, the large number of viruses and carcinogens, complex interaction thereof, as well as the discovery of complex systemic neurohumoral mechanisms of adaptation to pathogenic factors--all move to the fore non-specific measures to control these diseases. I. P. Pavlov wrote about a "systemic [general] mechanism of adaptation of the organism in general when it encounters pathogenic conditions." I. V. Davydovskiy is correct, to a considerable extent, in stressing that preventive measures implemented by the State and medicine are not necessarily nosologically directed.

"It would be more correct to maintain the opposite," writes I. V. Davydovskiy, "namely, that these measures are essentially without such

direction, and they have a beneficial overall influence on the organism, whether we are dealing with its embryonic and postnatal development, or so-called systemic nonspecific resistance, i.e., biological phenomena that are combined in such concepts as immunity, stress (the capacity to adapt to 'extreme stimuli') and to 'pathogenic situations'" (12).

For several years there has been a very distinct decline in the incidence of endogenous infections under the influence of improved sanitation, particularly with reference to housing and municipal conveniences, labor safety measures, better sanitary education of the public, as well as improved immunological properties of the organism as a result of the development of physical culture and athletics.

We submit the data of the scientific and methodological office of health statistics, RSFSR Ministry of Health, with reference to some nosological forms (number of sick cases per 1,000 people 15 or more years of age):

	<u>1954</u>	<u>1958</u>	<u>1962</u>
Sore throat	53.2	49.2	48.6
Phlegmons and abscesses	26.8	20.4	14.8
Conjunctivitis	32.1	27.1	22.8
Tracheobronchitis	29.4	21.2	18.7
Gastroenterocolitis	44.0	36.7	31.4
Pyoderma	42.5	26.9	19.4
Lobar pneumonia	0.9	0.6	0.2

There has also been a decline, though to a lesser extent, in the incidence of a number of other diseases of the endogenous infection type.

A significant decline of endogenous infections was also observed among children. Thus, the incidence of sore throat among children 1-15 years of age dropped from 89.3 cases per 1,000 children of the same age in 1954 to 77.8 in 1962; chronic otitis dropped from 24.4 to 7.6 cases; gastroenterocolitis from 19.2 to 12.2; lobar pneumonia from 0.83 to 0.19.

There is every reason to believe that within the near future there will be a further decline in incidence of the most widespread forms of endogenous diseases of an infectious nature.

Pathology of the ear, nose and throat, including sore throat [tonsillitis], accounts for about 40% of all recorded endogenous infections. These diseases are referable primarily to childhood and youth. Conditioning and physical culture, control of overcooling of the organism, dispensary services for individuals suffering from chronic ENT disease, particularly chronic tonsillitis--such are the

principal means of lowering the incidence of this group of diseases. To this should be added a search for a specific prophylactic--antistaphylococcal and antistreptococcal.

Pyoderma is an indication of low sanitary and hygienic standards of the people, and/or unsatisfactory labor safety measures in industry. It is valid to raise the question of further sharp decline of endogenous infectious disease of the integument within the planning period.

The same views apply to such widespread eye pathology as conjunctivitis. The amelioration and landscaping of populated areas, the creation of clean and hygienic enterprises, furnishing the entire people with well-arranged apartments with respect to hygienic standards, and significant elevation of the level of personal hygiene should result in a sharp decline of conjunctivitis.

There are considerable difficulties involved in evaluating the prospects of lowering the incidence of endogenous infectious pathology of the gastrointestinal tract. The creation of a profusion of foods is eliminating pathology related to malnutrition, from both the qualitative and quantitative points of view. However, this does not eliminate diseases that are related to nonhygienic and unwise nutrition. The most important prerequisite for preventing endogenous infections of the gastrointestinal tract is to provide for a rational diet in accordance with age, climate, occupational demands and individual distinctions of the organism, as well as a proper hygienic regimen of nutrition. In this regard, there are major tasks to be fulfilled in the area of organizing public nutrition on a scientific basis, and it will become the chief form of organizing nutrition for the broad masses. The broad network of dietetic dining rooms should become the school for proper nutrition of the people. Development of a specialized gastroenterological service and dispensary supervision for gastroenterological patients will play a rather important part.

Considerable results will be obtained in the direction of extensive implementation of dental and oral hygiene.

A sharp decline of neurogenic factors will be important to the decline of endogenous infections of the gastrointestinal tract; this will result from improvement of material and living conditions, shortening the work day, and proper organization of work and leisure hours.

Trauma

The Party program has set forth, as one of the important tasks involved in improving the well-being of the people, comprehensive improvement and alleviation of working conditions. Modern safety practices are being adopted in all enterprises, and sanitary hygienic conditions are being provided to eliminate industrial traumatism and occupational diseases. Industrial traumatism dropped by about 25% between 1960 and 1965 (S. Ya. Freydlin).

The technical basis for eradicating industrial traumatism is the elimination of heavy physical labor and shortening the work day,

complex mechanization and automation of industry, implementation of special measures dealing with labor safety and raising the workers' standards. There should also be a significant reduction of other types of traumatism--in the home, transportation, athletics--although the means of lowering the incidence of these types of traumatism are more complex. The fight against alcoholism should play a large role in lowering the incidence of household and vehicular traumatism.

Cardiovascular Disease

The decisions of the 12th and 13th Party congresses and the decree issued by the CC CPSU and Council of Ministers on 14 January 1960 put to medical science, among the most important tasks, that of searching for the means of controlling cardiovascular disease. There are deep grounds for this. Cardiovascular disease is in first place among causes of death and disability, it leads to considerable loss of fitness for work; the incidence of such disease is showing a tendency toward consistent growth, mainly due to the longer life expectancy and increased share of elderly and aged individuals.

Cardiovascular disease strikes primarily the elderly and, with respect to etiology and pathogenesis, it is apparently closely related to processes of aging of the organism. The most important nosological forms are essential hypertension, atherosclerosis (particularly atherosclerosis of the coronary vessels of the heart and vessels of the brain), angina pectoris and myocardial infarction.

Cardiovascular diseases are characterized by special determination by sociohygienic living conditions. Some deleterious occupational factors, negative emotions in everyday life, unsatisfactory housing, irrational nutrition, and inadequate physical activity are involved in the onset and development of cardiovascular disease. Constitutional factors are also significant, such as low metabolic rate; and some types of pathology such as obesity and diabetes mellitus, and inherited predisposition also play a part. This is quite consistent with current views with regard to the etiology and pathogenesis of cardiovascular disease. Predominant significance is attributed to the neurogenic factor in the development of essential hypertension. It has also been proven that disturbances of the neural regulation of metabolism and vascular functions play a large part in the development of atherosclerosis. There is no question about the link between atherosclerosis and essential hypertension. A. L. Myasnikov expounded the hypothesis of identity of both pathological processes that are manifested by hypertension in some cases and atherosclerosis in others, and more often by both (according to S. V. Kurashov).

With reference to the vast majority of diseases that we have discussed previously, a lower morbidity rate is the main, and sometimes the only, criterion of effectiveness of therapeutic and preventive measures. The methods used to record such diseases (mandatory registration of many infectious diseases, dispensary statistics on tuberculosis, statistics on requests for medical attention) made it possible to determine the dynamics of morbidity and to predict it, with a greater or lesser degree of scientific reliability. This does not apply to

cardiovascular disease. Such pathology is not subject to mandatory registration. There is a considerable difference between number of cases recorded when individuals seek medical attention and when mass physical examinations are performed, since not all patients seek attention at a polyclinic each year by virtue of the chronic course of most of these diseases. It is very difficult to compare data referable to different years, since the criteria of diagnosing different nosological forms and the very nomenclature thereof have changed in the course of several years. In the near future, a possible real decline of morbidity will be obscured by the fact that diagnostics will be improved as a result of mass measurements of arterial pressure, improved instrument and laboratory methods of examination, broader dispensary supervision and the related improvement of records on early forms of disease, increased public-initiated visits to institutions and the development of polyclinic, as well as sanatorium and resort care. Further changes in the age structure of the population which in itself determines the overall growth of cardiovascular pathology will also be of great significance.

In addition, from the purely methodological standpoint, morbidity, i.e., first onset of disease with reference to such chronic pathology as cardiovascular disease, could hardly be established accurately, and a rise of morbidity could merely indicate a better quality of diagnostics and medical care. We must conclude that, along with morbidity, several other criteria should be used to determine the effectiveness of controlling cardiovascular disease; considered together, these criteria may characterize the achievements of Soviet public health in this area.

The criteria could be as follows:

1. Lower death rate referable to cardiovascular disease in standardized indices and for different age groups. Thus, the standardized mortality index that eliminates age-related differences, referable to pathology of circulatory organs and rheumatic heart disease, dropped by 12% in urban areas of the USSR between 1939 and 1958. In 1958, the mortality rate referable to cardiovascular disease, expressed in standardized indices, was lower in the USSR than in England and the United States among both men and women.
2. A decline of mortality referable to the most dangerous forms of cardiovascular disease. In the last few years, as a result of good organization of specialized emergency care and anticoagulant treatment, there has been a 3-fold decline of mortality referable to myocardial infarction in Leningrad. There has been a decline in postoperative mortality following surgery involving the region of the heart.
3. Improved course of the pathological process, longer remissions and regression of early forms of pathology, lower incidence of exacerbations and shorter duration thereof, lower morbidity involving temporary disability, fewer cases of protracted disability and related invalid status.

These facts indicate that there is a realistic prospect for a further broadening of our capabilities in the control of cardiovascular disease.

Rheumatic heart disease occupies a special place among different types of cardiovascular pathology, according to distinctions referable to etiology, pathogenesis, sociohygienic characteristics, prophylactic and therapeutic methods. At the present time, rheumatism is viewed as an infectious and allergic disease of streptococcal nature. The great sociohygienic significance of rheumatism consists of the fact that it strikes primarily young people, mainly schoolchildren, and that it leads to serious complications and early disability.

The control of rheumatism is one of the most important tasks for public health agencies. At the present time, it has become systematic [planned] and it is headed by the constantly growing network of cardio-rheumatological institutions.

In 1965, in the USSR there were more than 100 cardiorheumatological dispensaries and cardiorheumatological centers, and more than 2,000 cardiorheumatological offices in polyclinics for adults and children.

In recent years, there has been a visible decline in the incidence of rheumatism in the USSR, and several indices related to the course of this disease have improved. As a result of organizing dispensary supervision and regular treatment, the number of patients with rheumatism receiving radical therapy after their first attack has increased; there are fewer recurrences and formation of irreversible anatomical changes (cardiac defects) has become less frequent; there has been an almost complete disappearance of acute forms of illness that previously often led to death. The mortality referable to rheumatism has declined.

However, we cannot be content with the results achieved. In spite of the fact that medical science does not yet have effective enough means for the complete elimination of streptococcal infection, the level of our present knowledge about the etiology and pathogenesis of rheumatism enables us to raise the question of a further sharp decline in incidence of this disease. The improved material living conditions and, first of all, improved housing conditions, provide the prerequisites for solving this problem successfully. However, the available opportunities are not yet being fully used by public health agencies. Coverage by dispensary supervision of rheumatic patients is still inadequate. The number of rheumatic patients picked up as a result of mass physical examinations is 2.5-4 times greater than according to the records of requests for attention. The increased incidence of latent forms of rheumatism makes it difficult to prevent serious cardiovascular lesions. Primary prophylaxis (prevention of new cases) is lagging, as compared to secondary (prevention of recurrences and exacerbations).

The measures to lower the incidence of rheumatism should proceed in the following directions:

1) Improving the overall physical condition of the growing generation by means of mass development of physical culture and implementation of broad ameliorative measures, development of the network of children's sanatoriums, forest schools, Pioneer camps, etc. All this increases natural immunity in general and immunity to streptococcal infection in particular.

2) Lowering the incidence of streptococcal pathology which is the source of rheumatism, in particular sore throat and chronic tonsillitis, dental and oral hygiene, etc.

3) Detection of rheumatism at the early stages of its development, prompt and persistent implementation of effective complex therapy using antibiotics, sulfanilamides and hormones that arrest development of the disease, prevent recurrences and serious complications; prolonged hospital care should be provided for patients with rheumatism; there should be development of special health institutions for patients with rheumatism, particularly for children.

4) Broad dissemination among the public of information about rheumatism and means of controlling this disease.

The effectiveness of planned, systematic and persistent control of rheumatism has been proven in practice. At this stage, good organization and high quality of the cardiorheumatological service gain prime significance. The most important tasks are to strengthen and further expand the network of cardiorheumatological dispensaries and offices, to complete the coverage of rheumatic patients with dispensary supervision, and to improve the qualifications of general practitioners and pediatricians in the overall therapeutic network, in the area of controlling rheumatism.

Cancer

In recent times, some advances have been made in the areas of prevention, diagnostics and treatment of cancer. A wide network of oncological dispensaries and offices has been developed. More than 20 oncological and roentgenological scientific research institutes, headed by the Institute of Experimental and Clinical Oncology, USSR AMS, in Moscow, are pursuing planned scientific research in the field of cancer control. On the basis of utilization of the latest investigative methods, our knowledge has broadened considerably with respect to etiology, pathogenesis and treatment of this pathology. As a result of mass preventive screenings and better public sanitary standards, there has been an increase in number of precancer states and early forms of carcinoma that have been picked up, at a time when therapy is more effective, whereas primary detection of carcinoma at the advanced stages was observed much less frequently. Prompt surgical intervention, dispensary follow-up on operated patients and prevention of metastases result in accumulation of a third clinical group (essentially healthy individuals under observation by oncological dispensaries following surgery). According to the data of A. G. Safonov (13), 60% of such individuals have no recurrences or metastases over a period of 3 years.

There has been some decline in the incidence of carcinoma of the skin, lower lip, uterus and breast. An increased number of carcinogens has been investigated, and work is being organized to remove them from the environment. With reference to treatment of cancer, we are turning to more effective and composite methods, including surgery combined with radiation, chemotherapy and hormone therapy.

In spite of all this, the incidence of cancer remains high and, with reference to some localizations, it is growing. In 1955-1964, the absolute number of patients with the diagnosis of malignant neoplasm established for the first time has more than doubled. There is an annual and consistent rise in the number of patients registered with a primary diagnosis. Oncologists believe that this cannot be totally attributed to causes such as improved detection of oncological patients or better quality of diagnostics and change in age composition of the population; they believe that there is also some real rise in the incidence of carcinoma, apparently due to some environmental factors. We also mention the tendency toward an annual increase in the number of cases of malignancy among young people.

The etiology and pathogenesis of malignant tumors are still unclear; there are no radical measures to prevent carcinoma and therapy is often to no avail. At the same time, there are some circumstances that indicate that we should expect some increase in the incidence of carcinoma in the near future. The following considerations speak in favor of this assumption:

1. The longer life expectancy and increased share of elderly individuals result in a large number and share of individuals that are primarily stricken with cancer. Thus, in the USSR, more than 75% of all cases of cancer are referable to individuals 50 or more years of age (14).

The age-related fluctuations are less marked for women, since cancer of the female reproductive organs and breast strikes primarily the middle-age groups. The following facts attest to the significance of the age structure of the population to the incidence of cancer. In 1960-1961, the indices of cancer constituted 91.0 per 1,000 population in Kazakh SSR and 172.6 (almost 50% difference) in Latvian SSR; when these indices are standardized for the mean age structure of the population of the USSR, the indices constitute 136.9 for Kazakh SSR and 146.9 for Latvian SSR (less than 10% difference).

2. It may be assumed that there will be an increase of carcinogens with development of the chemical industry and use of atomic energy for peaceful purposes. It may be very difficult to identify the carcinogenic nature of substances and thus to promptly take necessary preventive steps. Thus, according to the data of A. D. Timofeyevskiy, at least 17 years of work in a given industry are required for development of occupational cancer; cancer develops 20 or more years after the time of regular contact between the human body and a carcinogen (according to D. I. Mats, "Sociohygienic Aspects of Cancer Control," Moscow, page 77, 1962).

3. In view of the improved detection of cancer and longer life expectancy of cancer patients, there is an increase in number of recorded cases, particularly with reference to the second and third clinical groups. The second group includes patients with malignant tumors subject to special treatment; the third group includes essentially healthy individuals who have undergone basic radical treatment and with reference to whom regular observation is required for the purpose of prompt detection of recurrence and metastases, or preventive treatment. We know that a considerable number of patients who died of cancer (up to 20%) had not been on the rolls of oncological dispensaries because of diagnostic mistakes. At the same time, a considerable number of patients who underwent radical surgery for carcinoma and required dispensary follow-up for 3-5 years will eventually drop out of the oncological dispensaries and, consequently, they will no longer be registered. Registration of cancer patients is particularly inadequate in rural areas.

Measures to improve the environment, primarily to remove carcinogens from atmospheric air, as well as mass preventive screenings of the public for the purpose of detection and prompt treatment of pre-cancer pathology, and prevention of development into cancer will aid in lowering the incidence thereof. However, it should be borne in mind that of all the diagnoses of new cases of carcinoma only 16-18% (according to D. I. Mats) is referable to diagnoses made in the course of preventive examinations. Prompt detection of early forms of carcinoma as a result of preventive physicals and dispensary supervision of individuals who are sick for long periods of time should ensure prompt medical intervention and it should lower the incidence of advanced forms.

In the presence of the overall rise in incidence of carcinoma, chiefly due to changes in the age structure of the population, as well as improved diagnostics, and with the growth of patient groups because of effective therapy and the increased survival of cancer patients, broader coverage and better quality of dispensary supervision, there will be a change in proportion between the clinical groups as a result of a decrease in number of cases of advanced and inoperable forms of cancer.

In the light of current conceptions of prevention and treatment of carcinoma, it is necessary to revise the organizational forms and technical base in the area of prophylaxis and treatment of this disease. Relatively recently, surgery was the only effective method of treating this disease, and treatment of patients with carcinoma was administered in surgical, gynecological, otolaryngological and other hospital departments by the appropriate specialists, whereas predominantly so-called inoperable cases receiving only symptomatic treatment were admitted to oncological hospitals. At the present time, it is recognized that composite therapy is the most effective for carcinoma, consisting of a combination of surgery, radiation, hormone therapy and chemotherapy. Such treatment can be provided only in large, technically well supplied, specialized institutions through the efforts of highly qualified specialists. Even the largest oncological

dispensaries do not meet this requirement, according to the existing classification.

At the present time, it is planned to build oncological dispensaries with 420-bed hospitals and 150-bed boarding facilities.

Mental Illness

One should proceed with great caution in forecasting mental illness. The improved material well-being of the masses, better housing and working conditions, certainty about the future and lack of social shocks, development of special measures in the field of psychohygiene and psychoprophylaxis--all these circumstances create a beneficial environment for further lowering the incidence of mental illness.

At the same time, there are a number of causes that make it difficult to predict the incidence of psychic disease. These causes are as follows:

1. The lack of clear-cut nosological forms and hard and fast, universally approved classification of mental illness; existence of a significant number of diseases that are considered by the network of psychoneurological dispensaries only in the more serious forms; we refer primarily to such diagnoses as psychopathy and neurosis. There are difficulties involved in distinguishing between actually psychic diseases and so-called borderline states, and there is no clear-cut boundary between mental illness and central nervous system diseases that are classified as neurological disease. There is still inadequate coverage by dispensary supervision of mental illness, particularly in rural areas.

For example, A. V. Snezhnevskiy writes: "The incidence of schizophrenia, as well as many other mental illnesses, is determined according to the data referable to primary patient-initiated visits and number of patients on record. However, primary visits and number of individuals on the rolls are far from reflecting the true incidence.... Thus, we have no exact information about the incidence of schizophrenia."

"The data available at the present time not only are extremely approximate, they are also contradictory" (15).

The increase in number of patients with milder psychopathological manifestations and early forms of psychosis, who are serviced by the network of neuropsychiatric dispensaries, may be obscured to some extent by the actual decline in incidence of mental disease with development of this network.

2. The vague etiology of the most important psychic diseases, including schizophrenia, manic-depressive psychosis, presenile and senile psychosis; the large part played by endogenous and hereditary factors in onset and development of such pathology, and hence the limited possibility of preventing it.

3. The protracted course of most mental illnesses with lengthy remissions and recurrences which, in the absence of a well-developed method and standard criteria of recovery, makes it difficult to assess the levels of morbidity decline over a specific period of time.

On this basis, we can formulate the following tasks and forecast referable to lowering the incidence of mental illness: 1) a significant decline in incidence of psychosis related to exogenous factors both in cases when they are the direct cause of illness, and in those cases when they elicit manifestation or exacerbation of psychic illness of a constitutional nature; 2) as a result of improved treatment of mental patients and use of effective psychotropic drug therapy, particularly at the early stages of illness, prevention of exacerbations and recurrences, longer periods of remissions, prevention of a turn to an irreversible state (secondary and tertiary prophylaxis); 3) change in structure of groups of mental patients in the direction of a decrease in share of patients with severe forms requiring hospital care and increased share of groups suffering from mild forms that are cared for by the extramural and sanatorium methods; and 4) prevention of onset of disease by means of effective psychohygiene and psychoprophylaxis.

Methodological and Organizational Aspects of Planning With Reference to Lowering Morbidity

The tasks dealing with lowering morbidity are often reflected in the goals involved in making plans for public health development that are prepared by superior public health bodies. The main flaw of these goals, with regard to lowering morbidity, was that they were sometimes of a declarative nature, they were not backed up by actual capabilities, there was no correlation between the goals and the planned measures with reference to development of the public health network, personnel training, operational measures of public health bodies and other departments, etc.

The tasks set forth in the long-term plan for public health development dealing with lowering morbidity should proceed from an actual evaluation of the effectiveness of purposeful measures in this area with the existing level of medical science and technology. The expected results may be considerably exceeded on the basis of further advances of medical research.

One should use a differentiated approach to the question of reflecting tasks dealing with lowering morbidity in the public health plan, depending on the level of our knowledge on the etiology and pathogenesis of a given form of diseases, preventive measures to control them, possible effectiveness of departmental measures along the public health line and complex national economic measures to lower morbidity.

Measures to lower morbidity may be included in the following planned documents: a) long-term and annual plans for development of the national economy of the USSR and Union republics. These plans determine the general tasks dealing with lower morbidity, as well as the principal national economic and public health measures to implement

these plans. The system of indices in the plan should additionally include indices reflecting these measures such as, for example, the number of hospital beds for infectious cases or beds for tuberculosis patients; measures are indicated with regard to training personnel and placement of young specialists; assignments are given with reference to production of the necessary drugs and apparatus; some departments are given assignments dealing with appropriate preventive measures, etc. They are reflected in the long-term and annual public health plans and those of the corresponding sectors of the national economy; b) special decrees issued by the government of the USSR and the governments of Union republics; c) orders issued by the USSR and Union republic ministries of health which provide for planned measures to develop the network, train and place personnel, administer inoculations, and other special therapeutic and prophylactic, as well as sanitary and epidemiological measures. These orders are often issued to implement government decrees, or they reflect decisions adopted at the appropriate congresses and conferences; d) composite plans of health-improving measures in industrial enterprises and populated areas; and e) operational plans to lower morbidity that are prepared by public health agencies, sanitary-epidemiological and therapeutic-prophylactic institutions.

A most important prerequisite for successful fulfillment of plans dealing with lowering morbidity is to develop scientific and organizational-methodological centers in this specialty, as well as the network of specialized practical institutions.

As far back as the 1920's, the following were opened in the public health system: institutes to control tuberculosis and dermatovenereal disease, tropical institutes, institutes of mother and infant care; a network of special dispensaries and consultation centers was deployed; personnel training was organized. Without implementing all these measures it would have been impossible for Soviet public health to make progress in the control of social diseases that were left as a legacy by the tsarist regime and capitalistic system. When the task of eradicating malaria was fulfilled, the network of tropical institutes and malaria stations, and the group of malaria specialists were switched to control of parasitic disease, mainly helminthiasis. The great knowhow and qualifications of the malariologists who tested in practice methods of controlling such disease, as well as a well-organized malaria-control system, were effectively used to fulfill new tasks.

All this must also be borne in mind today, when tasks dealing with control of cardiovascular disease, viral disease, malignant neoplasms, etc., are being advanced to the foreground.

In the 1940's-1960's, cardiology, oncology, gastroenterology and other specialties developed. In the last 20 years, a powerful network of oncological scientific research institutes and dispensaries was created. In view of the tasks set forth by the Party and government to lower morbidity, the following institutions were recently established: Institute of Rheumatism, Institute of Influenza, Institute of Poliomyelitis, the Institute of Therapeutics was transformed

into the Institute of Cardiology; new institutes of gastroenterology and pulmonology were opened. The task set forth to lower morbidity could not have been successfully fulfilled without specialized scientific institutions or specialized departments in the general medical network, without planned training of specialists, as well as without a material base in the form of production of the necessary modern equipment, drugs, etc. In the future too, one should provide for all these measures when preparing long-term plans to lower morbidity.

At the same time, it should be borne in mind that the successful lowering of morbidity is determined not only by the availability of a specialized network and personnel, but also by the extent to which the general medical network is involved in this matter; this applies primarily to the district internists and pediatricians in cities, and physicians of rural rayon and district medical institutions. It is their task to detect the sick at the early stages of illness, to implement promptly and correctly therapeutic and prophylactic measures in accordance with the indications and methods developed by specialists, health education, etc. These tasks mean that the quality of work must be improved with reference to the local medical network and that it establishes close contact with specialized dispensaries, hospital departments and polyclinic offices.

A warning should be given with respect to the efforts made by some planning workers to establish the proposed rate of lowering morbidity or level that will be reached by the end of the planning period in the form of exact numeric indices.

The tasks dealing with lower morbidity that are put to public health agencies and broad masses of medical workers should be formulated as exemplary rates and levels that should be reached, with indication of the main directions and trends of lowering morbidity.

For example, when planning to lower the incidence of chronic disease, one should make a distinction between the rate of decline of new cases and the rate of decline in the number of sick individuals (groups)--as a rule the two indices do not coincide. When a decline of morbidity could be obscured as a result of changes in the age structure of the population, one can raise the question of lowering morbidity within specific age groups, for example, with reference to cardiovascular disease.

One can plan for lowering morbidity referable to specific forms of disease, increasing periods of remission, etc.

All this requires good knowledge concerning the trends in the course of different diseases, proper evaluation of effectiveness of the planned therapeutic and preventive measures, and this can be done only through collaboration between planning workers, scientists and practical workers in a given specialty.

Finally, there may be instances when it is not deemed possible to define a trend of the morbidity level for the planning period because of vague etiology and pathogenesis of a given disease or group

of diseases, shortage of statistical observations, and other causes. This circumstance does not preclude, however, the need to work out and reflect in the plan the therapeutic and prophylactic, as well as other measures to control such diseases, to prevent and treat them.

The method of determining the possible rate of decline of morbidity is based on the following initial factors: 1) investigation of the patterns of etiology, pathogenesis and symptomatology of disease; 2) investigation of statistics on morbidity and incidence of disease; 3) investigation of effectiveness of preventive and therapeutic measures; and 4) investigation of advanced knowhow dealing with control of a given disease.

To substantiate the tasks set forth it is often necessary to conduct special scientific research, in particular in the field of statistical analysis. One should not automatically extrapolate the rate of decline of morbidity that occurred in previous years to the planning period. As we know, depending on the distinctions of some nosological form or other and evaluation of the effects of factors that influence the morbidity level, the rate may be faster or slower depending on the level from which a decline occurs. The comparative method is very important to statistical analysis: comparing morbidity levels in the USSR and foreign countries, as well as within the USSR, in different Union republics, oblasts and cities. When making comparison to foreign data, one must first check the comparability of the data of a given foreign country (particularly if it is one of the capitalist countries) with data referable to the USSR: identity of nomenclature, methods of obtaining statistical data, etc. When comparing data referable to different Union republics and oblasts of the Soviet Union, one must determine whether the difference in morbidity level is related to differences in the age structure of the population, in the distribution of urban and rural population, etc. The comparisons to areas referable to the same or similar economic and geographic regions are the most conclusive. Special attention should be given to those areas where the lowest morbidity level has been reached. Investigation of the causes to which such an index is attributable, progressive methods of controlling morbidity in different areas should play a large part in formulating tasks dealing with lowering morbidity on a broader scale, in generalizing and disseminating advanced knowhow.

Success in fulfilling tasks related to lowering morbidity requires the broad participation of all public health institutions and of all medical workers. It is being implemented on the basis of a combination of all-Union and republic-level plans with the operational plans of local public health agencies, therapeutic-prophylactic and sanitary-epidemiological institutions. A most important prerequisite is broad discussion of the ways and means of obtaining lower morbidity in the medical press, at scientific congresses and conferences, at meetings of scientific medical societies and of medical workers.

In conclusion to this section, it should be stated that the methods of preparing plans to lower morbidity and eradicate some diseases have not yet been efficiently elaborated and they must be further improved.

FOOTNOTES REFERRED TO IN CHAPTER 4

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2. Ibid, p. 416.
3. MATERIALY XXIII S"YEZDA KPSS, Moscow, p. 231, 1966.
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5. L. V. Gromashevskiy, "The Problem of Eradicating Infectious Disease," ZHMEI (Journal of Microbiology, Epidemiology and Immunobiology), No. 12, p. 9, 1965.
6. Ibid.
7. MNOGOTOMONOYE RUKOVODSTVO PO MIKROBIOLOGII, KLINIKE I EPIDEMIOLOGII INFЕКTSIONNYKH BOLEZNEY (Multivolume Manual on Microbiology, Symptomatology and Epidemiology of Infectious Disease), Moscow, Vol. 5, 266-267, 1965.
8. Data pertaining to control of helminthiasis are submitted according to an article by P. G. Sergiyev, Ye. S. Shul'man, I. G. Abramov, in the journal, MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI (Medical Parasitology and Parasitic Disease), No. 6, 1966.
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11. I. V. Davydovskiy, PROBLEMA PRICHINNOSTI V MEDITSINE (The Problem of Causation in Medicine), Moscow, p. 43, 1962.
12. Idem, Ibid, p. 32.
13. TRUDY 3-Y VSESOYUZHNOY KONFERENTSII ONKOLOGOV (Proceedings of 3rd All-Union Conference of Oncologists), Moscow, p. 386, 1967.
14. M. N. Preobrazhenskaya, BOL'SHAYA MEDITSINSKAYA ENTSIKLOPEDIYA (Great Medical Encyclopedia), Vol. 27, p. 913.
15. Ibid, Vol. 31, p. 843.

Chapter 5

THERAPEUTIC AND PROPHYLACTIC CARE STANDARDS FOR THE URBAN POPULATION

Development of Methods of Investigating Medical Care Requirements of the Public

At all stages of development of public health, determination of standards with regard to therapeutic and prophylactic care constitute a most important task of long-term planning. As far back as 1925, in connection with the decision of the 5th All-Russian Congress Health Departments, the RSFSR Narkomzdrav worked out instructions on preparing a draft plan for a normal provincial network of medical and sanitary districts. These instructions defined the standards of hospital care, not only for the rural population, but also for workers and the families of insured individuals. The standards were based on the works of zemstvo authors and the work of the commission of G. Ye. Reyn, after making some adjustments in the direction of broadening them. In 1926, a special commission dealing with establishment of methodology of preparing standards of therapeutic and prophylactic care for the urban population was created at the RSFSR Narkomzdrav. As a result of the work of this commission, a collection was published in 1929, edited by A. I. Miskinov and with the participation of P. I. Kurkin, I. I. Kovalev, P. P. Sletov, S. M. Mikhaylov, I. V. Novokhatny and other authors. Although this collection is of some methodological interest, neither the methods used by the authors nor the results of their investigations could find practical application in planning, since this was referable to the period of the first 5-year plan of development of the national economy and the very theses underwent substantial change.

The standards adopted in preparing the first and second 5-year plans were based on statistics that were amended in accordance with the tasks spelled out in the plan of differentiated medical care for different social groups in the population and primary servicing of the main groups of industrial workers and collectivized peasants. Material referable to the all-Union public health census conducted in 1930 served as the statistical basis of the second 5-year plan. In view of the still inadequate level of medical care at that time, the question of investigating the actual medical care requirements was not a pressing one; it was merely a question of outlining the rate at which the standards would rise in accordance with the financial and personnel capabilities and with due consideration of a class-oriented approach. The answers to these questions were reflected in "Data Referable to Preparation of the First 5-Year Plan of Public Health Development," published in 1930 by the RSFSR Narkomzdrav and in the "Proceedings of the First All-Union Conference Dealing with Planning of Public Health and Vacations," which was convoked by the USSR Gosplan in 1932.

In the first half of the 1930's there were few scientific research works dealing with substantiation of medical care standards. We can mention the works of A. M. Efman, "Hospital Care Standards for Metallurgical Workers in the Urals," and the one by I. L. Gurvich and L. Nepomnyashchiy entitled "Standards for the Hospital Bed Network and Duration of Hospital Care (According to Ivanovo)." The work of L. S. Kaminskiy, "On the Question of Setting Standards for Extramural Care in Leningrad," published in 1934, dealt with standards for ambulatory polyclinic care. The expert method was used in the work of I. L. Gurvich and L. Nepomnyashchiy to determine hospitalization screening; however, they took into consideration only the data on morbidity involving temporary disability.

Statistics dealing with overall morbidity were first used to set hospital care standards by V. S. Nikitskiy, in Leningrad, in 1935-1940. The percentage of hospitalization screening and duration of hospital care were determined by means of expert evaluation of these indices in the best therapeutic institutions of the city (without using individual expert evaluation). The standards of polyclinic care were determined by making adjustments to the statistical indices, unrelated to morbidity rate. These works were published in 1945.

In connection with the unification of hospitals and polyclinics in the late 1940's and early 1950's, the task was formulated of developing hospital and polyclinic care standards for the urban population in the presence of such unification. Investigation and evaluation of statistical data pertaining to volume of medical care in many cities (47 cities by the Institute of Public Health Organization and History of Medicine and 92 cities by I. I. Rozenfel'd) served as the basis for the work that was pursued (by V. A. Goryushin, D. G. Oppengeym, A. M. Dvorkin, S. S. Ostroumov, V. I. Fershtudt and V. A. Dem'yanova at the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko; by I. I. Rozenfel'd, head of the planning department, USSR Ministry of Health, and docent on the chair of public health organization at the Central Institute for Advanced Training of Physicians) and the necessary adjustments were made with the involvement of qualified specialists and administrators of therapeutic institutions.

In 1954, I. D. Bogatyrev used a method of excerpting data about morbidity from primary records in the city of Likino-Dulevo, and this made the study much more profound, and it also established several patterns that could not be derived directly from statistical reports. This method, which was developed in work dealing with determining the therapeutic and prophylactic requirements of industrial workers (I. D. Bogatyrev, O. A. Aleksandrov, A. Ye. Shakhgel'dyants, M. S. Brilliantova, as well as I. V. Pustovoy) and of the urban population (I. D. Bogatyrev) were used extensively in the subsequent scientific work of other authors.

Individual expert evaluation with subsequent statistical processing of its results found application for determining hospitalization requirements (screening for hospital beds) in the above-mentioned works of V. S. Nikitskiy, and M. M. Mazur with reference to the city

of Stupino in 1949, as well as in the works of F. M. Illupina, V. D. Dubrovina and L. I. Gribkova for the city of Kineshma in 1957.

Individual expertise in urban polyclinic requirements was used in the works of A. P. Zhuk, F. M. Illupina, and V. D. Dubrovina for Saratov and Ivanovo in 1959-1960. The expert method was used to determine the frequency of visits, specialty, nature of visits (therapeutic, dispensary, etc.), differentiation was made between polyclinic and house call requirements. Expert evaluation of requests for medical attention was also made as related to chronic disease by means of conducting check-ups.

In recent years, several works have been completed that deal with medical care requirements as related to different specialties. Thus, in the field of pediatrics alone, we should mention the works of S. S. Erman and S. Yu. Romanovskaya (1950), N. S. Nazarova and Ye. V. Abramova (1954-1955), K. A. Gashimova (1953-1954), R. B. Kogan and F. I. Kasimova (1959), R. B. Kogan and M. G. Litvinova (1961), A. Ya. Shishlyannikova (1963), N. A. Gorbunova (1964). The methods used to set medical care requirement standards for different specialties were essentially the same as the general methods, with due consideration of the distinctions of different specialties. Thus, in pediatrics, standards are set for preventive care, with the differentiated standards for different age groups, and the findings of physical check-ups were used with reference to pathophysiology.

Along with substantiation of the methods in the relevant sections of many of the above-mentioned works, methodological questions of determining medical care requirements were discussed in the works of I. I. Rozenfel'd, I. D. Bogatyrev, P. I. Kal'yu, A. P. Zhuk, G. A. Popov, V. I. Kant and others.

The program of the CPSU has formulated the task of satisfying completely the urban and rural population requirements referable to all types of highly qualified medical services. Complete satisfaction of these requirements and particularly coverage of the entire population with dispensary supervision constitute one of the most important means of lowering morbidity, strengthening the health of the people and increasing life expectancy. In the light of this requirement in the Party program, it is becoming particularly urgent to investigate the actual levels of public requirements referable to highly qualified medical care.

The tasks related to preparing a long-term plan of public health development for 1961-1980 and to the different stages of this period have made it necessary to pursue in-depth scientific research work to determine the specialized medical care requirements of the urban and rural population. This work, which was begun in 1961, was conducted in Stupino, Moscow Oblast; Severskiy Rayon of Krasnodarskiy Kray, Vinnitsa and Mlynovskiy Rayon of Rovenskaya Oblast in Ukrainian SSR, in Yelgava and Saldusskiy Rayon of Latvian SSR, in Andizhan and Bukinskiy Rayon of Uzbek SSR. These studies were pursued by the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, Moscow Institute imeni F. F. Erisman, Ukrainian

Institute of General and Municipal Hygiene, Institute of Public Health and History of Medicine of the Uzbek Ministry of Health, with the participation of specialized scientific research institutes and clinical chairs of medical VUZ. All of the above-mentioned methods were used in this study: excerpting data from primary records, expert evaluation and physical examinations. In rural areas, the physicals were performed for the first time to determine medical care requirements. The typical feature of this work was the composite investigation of requirements referable to all types of therapeutic and preventive services and all specialties, scientific and clinical substantiation of requirements, broad involvement of clinicians and expertise in conducting the physicals, differentiated investigation of requirements according to age and sex groups, as well as separately according to types of visits (therapeutic, dispensary, preventive).

The results of studies dealing with standards for therapeutic and preventive care which were pursued by the Moscow Scientific Research Institute of Hygiene imeni F. F. Erisman in conjunction with several specialized scientific research institutes were published in 1967, in a collection of works edited by Professor I. D. Bogatyrev, entitled "Morbidity of the Urban Population and Standards for Therapeutic and Preventive Care." The organizational and methodological procedures used in this study and some of the general results had been published previously in several articles by I. D. Bogatyrev, whereas some parts referable to different specialties were published in articles and works by M. A. Bogomol'skiy (pediatrics), V. S. Kuznetsov (otorhinolaryngology), G. A. Novgorodtsev (stomatology), A. I. Pochevkin (ophthalmology), R. A. Yarullina (general medicine) and others. The methodological aspects and certain other of the results of a study pursued in Latvian SSR by the Institute of Social Hygiene and Public Health Organization imeni N. A. Semashko were reflected in articles by S. M. Danyushevskiy, A. P. Zhuk, Yu. A. Podvarko, R. B. Kogan, L. V. Lokshina and V. D. Dubrovina.

In addition to the above-mentioned individuals, the authors included the scientific staff of the institute: Ye. D. Nikol'skaya, Z. I. Yeremina, L. K. Khval'nova and T. N. Dekeyper.* With reference to the Ukrainian Institute of General and Municipal Hygiene, we should mention the works of G. M. Zelezinskaya, L. A. Averbukh, F. S. Ryukhov, N. M. Maslenkova and others.

We shall describe some of the distinctions of the methods used by the scientific staff of the department of economics and public health planning at the Institute imeni N. A. Semashko, on the basis of the medical institutions in Yelgava, Latvian SSR. They deal primarily with evaluation of the results of the physical examinations.

It would be a serious methodological mistake to consider the results of expert evaluation of actual volume of medical care and results of the physicals as the standard, and this would lead to a

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sharp overestimation of requirements. While primary expert evaluation represents a figure that is calculated by the statistical method and that characterizes the required annual volume of medical care for individuals who sought such care, the latter expresses the therapeutic measures that the experts consider mandatory for the individuals they examined in that particular year, in connection with pathology picked up through the examination; however, they do not provide conclusions as to the required regular volume of medical care. In order to determine the medical care standard (number of visits and hospitalization percentage) referable to such pathology, a differentiated approach was needed to different groups of nosological forms.

Some new cases of illness are subject to treatment by means of surgery or courses of therapy. Some of these patients are also subject to dispensary supervision for a certain period of time. This group includes those suffering from chronic tonsillitis, hernia, chronic appendicitis, some benign neoplasms, helminth pathology and others. The number of illnesses referable to this group considered in the standard was taken to equal the number of illnesses picked up through the physicals divided by 3-5 years, which are required to treat all of the new cases depending on the nature of illness.

The physicals picked up a number of chronic or protracted diseases for which dispensary supervision is not set up, but the patients visit polyclinics periodically because of exacerbations, to check their condition and for other reasons. In order to set standards of polyclinic and hospital care referable to such diseases, it became necessary to add in the analysis additional estimating indices which we named the indices of frequency of requests for medical attention [visits] that expressed the period of time (number of years) during which the patient visited the polyclinic or was referred for hospital care once with reference to this disease. When determining frequency, the conclusions of specialists as well as the results of some works (E. I. Deychman, V. D. Dubrovina) were taken into consideration.

The physical examinations picked up a significant number of mild illnesses or pathological states compatible with normal work activity or readily compensated by means of prostheses (eyeglasses, truss). Such diseases included most benign neoplasms, some skin diseases, impaired refraction and accommodation showing no progression, mild forms of pes planus, etc. The patients in this group were either completely excluded from the standard, or else periodic single check-up visits were established for them. Due consideration was given to the fact that some illnesses may be eliminated without special therapeutic care, by implementing hygienic measures.

It is only with reference to patients requiring dispensary supervision in accordance with existing statutes, as well as expert decisions, that the number of illnesses taken into consideration in setting the standards was considered to equal the sum of number of patient-initiated visits in connection with such illnesses and the number of sick cases additionally picked up through the medical examinations.

Preventive visits paid by essentially healthy individuals subject to periodic check-ups in accordance with the existing statutes according to age or occupational signs, were added, according to specialties, to the number of patient visits obtained according to the data of expert determination of actual attendance and physical examination findings. The possibility of duplication of such preventive visits and dispensary visits, because of morbidity in different age groups, was taken into consideration.

With reference to children's age groups, the physical examination findings involved considerably fewer adjustments than with reference to adults, and this is attributable to mass dispensary coverage of the child population. It was established that there is a group of weak children requiring more frequent visits or periodic hospitalization.

This method does not rule out the possibility of some error; however, it permits obtaining the most current standard and precludes overestimation thereof as would have been the case with simple addition. In subsequent works dealing with medical care standards referable to chronic diseases one should investigate the groups of individuals seeking medical attention and those hospitalized with reference to a specific group of illnesses over a 3-5 year period, with expert evaluation of the data obtained, and this would provide a more accurate idea about the frequency of patient-initiated visits and hospitalization.

When working out standards, one should be governed by the stipulation that the standard should be relatively stable and should permit appropriate orientation with reference to indices of availability of medical care in public health planning, development and specialization of the network of medical institutions and medical personnel, strengthening of the material and technical base. Implementation of the standards depends on a number of social and organizational conditions, including availability of a material base and medical personnel, informing polyclinics about all cases of illness, particularly chronic disease, the population serviced by the rayon polyclinics, activities of the polyclinic with regard to ambulatory treatment and prompt hospitalization, public awareness with respect to health, and this in turn is determined by the level of overall and sanitary standards and the development of health education.

The methods of studying medical care requirements must be further developed and refined, in the direction of searching for more economic and less cumbersome methods of investigation, in-depth studies of dispensary supervision requirements, methods of determining long-term requirements with due consideration of prognosis of morbidity and in-depth development of medical care requirements referable to different specialties.

Hospital Care Standards for the Urban Population

The therapeutic and prophylactic care standards consist of standards referable to three main types of care: ambulatory polyclinic, hospital, and sanatorium. The proportion between these types of medical

care varies in different republics and oblasts. Usually a shortage of physicians retarded the development of polyclinic care, whereas a shortage of hospital bed resources limited the level of hospital care. Polyclinic care suffered most of all, since with a shortage of hospital beds polyclinics are loaded with seriously ill patients that hospitals refused to admit. This situation reflects the preventive work pursued at the polyclinic, and first of all dispensary services.

The standards of availability to the public of each of the above types of medical care are determined by the special tasks and requirements referable to these different types of services.

The polyclinic is the medical care link that is closest to the public, that provides unity and bears the main responsibility for medical services to every resident in its rayon. It performs the following functions: a) it provides direct medical care to individuals requiring ambulatory polyclinic services; b) it refers individuals requiring hospital and sanatorium care to these institutions, and it implements subsequent therapeutic and prophylactic measures. The district physician plays the leading role in implementing all of the above measures and he should become a genuine family doctor; c) implementation of dispensary supervision of essentially healthy individuals, as well as patients according to nosological forms; d) expert determination of temporary disability; and e) health education work among the public.

The hospital renders medical care to individuals requiring treatment in a hospital, mainly those who require surgery; parturients; cases requiring complex diagnostic and therapeutic techniques, regular medical supervision and observation; nursing care; hospitalization is used for clinical diagnostic work-up as well as with other family-related indications when it is impossible to provide the necessary care at home.

Sanatorium care should meet the following requirements: a) availability of healthy environmental conditions and first of all climate factors; b) supervision and control by a physician during sanatorium treatment and observation of sanatorium regimen; and c) use of special physical therapeutic factors (physiotherapy, balneological therapy, mud therapy, etc.).

With regard to methods used, hospital care will ultimately resemble more and more that rendered in a sanatorium, and in some specialties the differences between these two types of medical care will gradually disappear, close continuity will become established between them, and they will merge into an essentially single form, as is already the case with respect to patients with tuberculosis. One of the forms that provides unity and continuity of hospital and sanatorium care is the organization of sanatorium departments in hospitals and departments for those who are convalescing (stage by stage therapy).

One should begin determination of standards for therapeutic and preventive care by establishing the hospital requirements, not only because they determine the medical care requirements of the more seriously ill patients, but also because it is only when these requirements are fully met that polyclinic care will be used for its immediate purpose, and dispensary coverage can be provided for the entire population. The historical experience, statistical analysis, results of scientific research conducted in recent times, as well as the hypothesis

concerning the change in age structure of the population and related change in morbidity structure, lead us to the conclusion that there is a need to plan for further growth of the standards to meet the hospital bed requirements of the urban and rural population.

The comparison of the dynamics of indices of availability of hospital care to the public and of the standards adopted in preparing long-term plans indicates that these indices and standards are rising. Thus, in 1927, there were 6 hospital beds per 1,000 urban population; according to the draft of the first 5-year plan of development of the national economy, the standard of 7.6 beds was adopted. This standard was exceeded, and in 1940 the availability of hospital beds reached 8.2 per 1,000 urban population. Order No. 870 dated 21 November 1949, issued by the USSR Ministry of Health, stipulated a standard of 10 beds per 1,000 population, whereas order No. 217-m dated 29 October 1954 of the USSR Ministry of Health set the standard at 11.2 beds (without psychiatry).

In 1965, the index of availability of hospital care reached 9.6 beds per 1,000 population, including psychiatric care. However, even at the present time, the number of beds does not satisfy the hospitalization requirements of the public, and a considerable number of people requiring hospitalization are taken care of at home or constitute groups of patients who are frequently ill for long periods of time and who visit the polyclinic many times. If a considerable number of these patients were hospitalized and if special homes admitted chronic patients and the aged who required such care, the polyclinic would be considerably relieved and it could concentrate on servicing patients suffering from early stages of disease and on dispensary supervision of healthy and sick groups.

In 1965, there was a total of 2,225,500 hospital beds in our country, as compared to 1,532,100 in 1958, and this constitutes a 45.2% increase in the bed resources. The directives of the 23rd CPSU Congress referable to the 5-year plan of development of the national economy of the USSR in 1966-1970 stipulated that the number of hospital beds should reach 2,680,000 in 1970.

As a result of the general decline of morbidity and reduction of treatment time, due to the use of the latest technology and new effective drugs, the hospital bed requirement has dropped. Thus, eradication of some infectious diseases and the lower incidence of tuberculosis cannot but ultimately lead to a reduction in number of infectious beds and in the network of tuberculosis institutions. However, this trend is more than compensated for by several trends of an opposite nature.

The use of the latest technology should increase the role played by the hospital both in diagnostics and therapeutics. The more rational complex use of all types of new apparatus; more active therapy, in particular surgery; the systematic follow-up of the effectiveness of new agents and prevention of complications; patient work-up for the purpose of establishing an exact diagnosis—all these can be done much better at a hospital.

The change in age structure of the population and the increased number of elderly and aged individuals will result in increased hospital care requirements, since we observe many hospitalized patients, who also need longer treatment, referable to this group.

It is also extremely important to take into consideration hospitalization requirements from the standpoint of patient care. Under conditions of full employment of the able-bodied population, patient care should become essentially a social function.

According to the 1959 census, of the total able-bodied population (with the exception of children up to 16 years of age and individuals of retirement age), only 10.4% are engaged in housework and rearing children at home; these are mostly mothers of infants or with many children.

Care in the home that is organized by the polyclinic has its own special objectives (care of acute pathology, care for children, dispensary supervision of the elderly), but it cannot replace appropriate hospital care.

In view of all the foregoing, in the future too, in spite of the lower morbidity, one should proceed from the task of increasing the percentage of individuals serviced by hospitals.

Determination of the number of individuals subject to hospitalization is the first stage of planning of hospital care requirements.

This index can be determined either in relation to the overall population (hospitalization percentage), or with reference to individuals who have sought medical attention because of illness (screening for hospitalization).

In 1965, hospitalization of the urban population of the USSR constituted 20%.

The statistical records do not permit us to determine the hospitalization percentage according to specialties separately for the urban and rural population. With reference to the overall population, the hospitalization level in the principal specialties constituted the following figures in 1964 (per 1,000 population):

General medicine	38.5	Infectious disease	13.7
Surgery*	29.5	Ophthalmology	2.2
Obstetrics	21.3	Otolaryngology	3.3
Gynecology	36.6	General and others	10.5
Neurology	2.5	For all specialties	
Pediatrics	24.1	(without psychiatry)	180.0
Phthisiology	3.7	Psychiatry, additionally	2.6
Dermatovenereology	2.1	Total	182.6

*Including traumatology, oncology and urology.

Experience shows that with the existing availability of hospital care for the urban population, the greatest difficulties are encountered with reference to the hospitalization of general medical cases. The changes in age structure of the population are leading to an increased share of patients with protracted pathology for which hospitalization is inadequate at the present time. There must be considerable expansion of hospitalization of cardiovascular patients. Nor is there adequate hospitalization of patients suffering from early and mild forms of pathology of internal organs who are under dispensary supervision, as well as hospitalization for diagnostic purposes.

The surgical care requirements of the public are determined by two opposite tendencies. On the one hand, in view of the advances in surgery, the range of surgical interventions is broadening with reference to cardiovascular disease, plastic and reconstructive surgery, orthopedic diseases; on the other hand, because of the lower incidence of traumatism, particularly industrial, there will be fewer trauma victims who presently constitute a considerable share of the patients in surgical departments of hospitals.

There will be less hospitalization referable to infections because of the decline in incidence of infectious disease and future eradication of some of them. However, it will be necessary to provide broader hospital care for patients with the more serious and complicated forms of influenza. In the future, there will be a sharp decline in hospitalization requirements of tuberculosis patients.

Hospitalization requirements referable to children are not being met adequately. Some of the pediatric hospitals are overcrowded. Order No. 395, 31 July 1963, of the USSR Ministry of Health states that some of the children subject to hospital care are being cared for at home, and this lowers the level and outcome of treatment. Because of the shortage of bed resources, stage by stage treatment is not provided for children in special sanatorium departments of pediatric hospitals, particularly with reference to those suffering from rheumatism and respiratory tract pathology.

There is inadequate hospitalization of patients with skin disease. Many neurological patients who require prolonged hospital care are not hospitalized and are serviced at home. This applies in particular to patients with cerebrovascular accidents and individuals with pre-insultus state. The increase in number of elderly individuals makes this a particularly pressing problem.

There should also be an increase in hospitalization level referable to ophthalmology and otorhinolaryngology.

The greater attention given to the control of malignant diseases makes it necessary to increase the scope of hospital care for cancer patients. It is planned to open special oncological hospitals furnished with modern apparatus for radiation therapy.

The next stage in determining hospital care requirements is to determine the duration of hospital care or mean number of days of hospitalization, per patient, per bed.

Changes in hospitalization time are occurring in two opposite directions.

The following factors affect duration of hospital care in the direction of increase: a) change in patient composition with regard to both age and nature of illness. Increased share of elderly and aged patients and increased hospitalization of patients suffering from protracted disease will result in an increase in hospitalization time, particularly in such specialties as general medicine and neurology; b) adoption of the principle of stage by stage treatment and the creation of convalescent and sanatorium type departments at hospitals will also make it necessary to extend hospitalization time, particularly with reference to pediatrics; and c) it will be necessary to increase significantly the hospitalization time for tuberculosis patients because of the need to obtain effective and lasting cure of such patients.

The following factors are involved in the direction of shortening hospitalization time: a) increased effectiveness of therapeutic measures, as well as measures to prevent complications, which should accelerate the recovery process. In particular, administration of antibiotics shortens hospitalization of surgical patients and those suffering from pathology referable to specialties close to surgery; b) improved organization of the treatment process for hospitalized patients. In particular, of great importance is the establishment of close ties between the polyclinic and hospital, prompt preparation at the polyclinic for hospital care, prompt performance of clinical work-up, surgical interventions, etc.; and c) broader hospitalization of patients with milder forms of pathology requiring care for shorter periods of time.

The existing indices of treatment time in urban and rural hospitals of the USSR are submitted on page 115 [Table 16].

With consideration of the effects of the above factors that act in opposite directions and that determine a reduction in some cases, and an increase in hospitalization time in others, in all cases the most important task is to make optimum use of the bed resources. By 1970, there will be over 2.5 million hospital beds in our country and these can provide hospital care for up to 50 million people. Proper utilization of these resources, which reflect the principal material and technical base of public health, should not only improve medical care, it is also of great economic significance. However, it would be wrong to believe that this could be achieved by making some change in the plan indices or simply by adding specific directives to the plan pertaining to mean duration of hospital care. This implies the danger of lowering the quality of the therapeutic process and, in some cases, would lead to a race to increase bed turnover through unjustified curtailment of hospital care and premature patient discharge. As shown by experience, not only is this harmful to the patient, it also

overloads the polyclinic with unnecessary visits and results in a need for rehospitalization. The welfare of the patient and the achievement of stable positive results of treatment are the chief requirement, and in each case this depends on diverse factors--diagnosis and severity of illness, the patient's age and condition of his organism, presence of complications, etc.

Improved efficiency of hospital bed use should be obtained not so much in the direction of planning medical care as in proper organization thereof, and it is a most important organizational task for public health bodies and administrators of therapeutic institutions. It can be stated without exaggeration that the effectiveness of utilization of bed resources can serve as the only complex criterion to assess rational organization of all therapeutic and preventive care in general, and of hospital care in particular.

What then are the main directions that would ensure rational hospital bed use and, first of all, that would reduce the duration of hospital care with maximum effectiveness thereof?

One of the most important prerequisites is to provide for the close contact and continuity between the polyclinic and hospital, and for this purpose unification of such institutions is more beneficial, but it is not mandatory. Delay in hospitalization of scheduled patients often results in a situation where laboratory tests and other examinations made at the polyclinic are already obsolete and they have to be repeated at the hospital, and this extends hospitalization time. Not infrequently, without sufficient justification, the preoperative and diagnostic stages of hospitalization are extended. Occasionally, this is related to unsatisfactory organization of the therapeutic process, and it can be corrected by implementing simple organizational measures. Occasionally, the same situation may be the result of disproportion in the actual structure of the hospital, and the narrow areas need to be expanded, which may be the case if the laboratory, x-ray department, and surgical unit have a small traffic capacity; occasionally, bed-days are not used effectively because of waiting for a consultation with specialists in an allied field or in connection with interruptions in delivery of some effective drug or reagent. Hospitalization of a patient may also be prolonged as a result of the unsatisfactory organization of patient discharge. For rational utilization of bed resources, it is also important to adhere strictly to the indications for hospitalization in accordance with the diagnosis and severity of illness.

Proper and scientifically substantiated indication in the plan of the number of days and mean hospitalization per bed in specialized hospital departments is a difficult task, and it requires specific analysis and proper determination of trends. One must prepare clinically-substantiated programs for therapy referable to the most important and most widespread nosological forms. When comparing hospitalization time in different hospitals to find optimum variants, one must compare the duration of hospitalization per bed as related to the same diseases and the same types of hospitals (oblast, municipal,

rayon), and there must be a large enough number of cases involved. We should note that scientific research in this direction is still inadequate.

The number of days of bed occupancy per year is subject to relatively minor changes in the plan. For most specialties, 340 days per year is sufficient to rule out unnecessary bed vacancy and, at the same time, to make it possible to manipulate the bed resources efficiently, and to temporarily close some wards and departments for routine repairs. With reference to maternity and infectious beds, where there are some fluctuations in bed resource utilization, one should plan for a shorter period of bed occupancy, 300 days for maternity beds and 310 for infectious beds.

In the future, the overall index of bed utilization will rise because of more rational use of hospital beds. At the same time, one should eliminate completely the overloading of bed resources.

After setting down in the plan the hospitalization percentage, mean number of days of bed occupancy per bed, and mean number of days of bed occupancy per year, we can turn to determination of the required availability of hospital care expressed in number of beds per 1,000 population (as a whole and for different specialties).

We submit the distribution of hospital beds referable to servicing the urban population according to specialties, in accordance with orders of the USSR Ministry of Health and the standards recommended as a result of scientific studies pursued by different authors (Table 19).

The existing indices of availability of hospital beds referable to most specialties have not yet reached the level set in order No. 217-m and the standards indicated in Table 19. For this reason, they can serve as a guideline in deploying the hospital bed network for the immediate planning period. In each republic, oblast and major city, these standards should be amended with due consideration of local distinctions pertaining to age structure of the population and morbidity level, primarily with reference to the nosological forms that determine in essence the public requirements as to hospital care. In particular, if we do not consider these distinctions, we cannot develop standards for pediatric, maternity and gynecological beds, infectious beds, beds for tuberculosis cases, yet beds referable to these specialties make up about 50% of the entire bed resources. As for standards for a longer projected period, one must take into consideration the prospects of changes in age structure of the population, changes in level and structure of morbidity, as well as the use of the latest technology and changes in organizational aspects and system of medical care of the public.

Standards of Ambulatory Polyclinic Care for the Urban Population

The most important task of public health is to satisfy completely the urban and rural requirements with respect to polyclinic services, providing a high quality of polyclinic care and covering the entire population with dispensary supervision.

Table 19

STANDARDS FOR NUMBER OF HOSPITAL BEDS PER 1,000 URBAN POPULATION

Specialty	Order No. 870, 21 November 1949	Order No. 217-m, 29 October 1954	V.A. Minyayev (Leningrad), 1965	F.I. Ilupina, V.D. Dubrovina, L.I. Gribkova, (Kineshma), 1957	L.G. Lekarev et al. (Vinnitsa) 1954	S.M. Danyushevskiy, A.P. Zhuk, Yu.A. Podvarko et al. 1967	I.D. Bogatyrev et al. 1967	Protection, depart- ment of public health Planning USSR Ministry of Health (G.A. Popov), 1966
General medicine	2.0	2.0	3.1	2.81	2.47	3.1	2.3	3.4
Pediatrics	0.95	1.2	--	1.76	1.5	1.17	1.21	1.2
Obstetrics	1.2	1.2	0.9	0.89	0.9	0.74	0.8	0.8
Gynecology	0.6	0.8	1.2	0.91	0.59	0.87	0.7	0.8
Surgery	1.9	1.9	1.6	1.61	1.16	1.69	0.97	1.6
Oncology	--	--	--	--	--	0.19	0.23	0.3
Phthisiology	1.05	1.2	0.8	1.09	1.21	1.51	2.0	0.8
Neuropathology	0.2	0.3	0.6	0.44	0.43	0.98	0.4	0.4
Dermatovenereology	0.4	0.4	0.5	0.40	0.16	0.59	0.3	0.35
Ophthalmology	0.25	0.35	0.3	0.24	0.17	0.32	0.26	0.35
Otolaryngology	0.15	0.25	0.4	0.50	0.35	0.76	0.29	0.3
Infectious disease	1.3	1.4	0.9	1.66	1.73	1.05	1.5	0.7
General and others	--	--	0.41	--	0.161	--	0.182	--
Totals	10.0	11.2	10.3	12.31	11.44	12.97	11.14	11.0
In addition, psychiatry	--	--	1.1	--	--	--	1.73	2.5

1 Urology

2 0.04 -- stomatology, 0.14 -- logopedics

In spite of the considerable increase in the provision of polyclinic care in cities, the number of polyclinic visits, including house calls (deducting visits made by rural residents in cities) converted per urban resident is growing but very slowly. This is related to rapid growth of the urban population.

There are significant fluctuations in the availability of polyclinic care in different Union republics, oblasts and cities. The existing level of availability of polyclinic care to the urban population does not usually meet the public requirements. This is indicated by the fact that physicians are overloaded during polyclinic office hours, there are lines in polyclinics, and there are not enough active, as well as dispensary visits.

The total number of polyclinic visits referable to physicians (including visits to the polyclinic and house calls) consists of the following groups:

1. Therapeutic patient visits in connection with illness.
2. Dispensary visits which, in turn, consist of dispensary visits by groups of patients referable to a specific nomenclature of diseases and dispensary visits made by essentially healthy individuals in accordance with age, occupational and physiological indications.
3. Other preventive visits related to obtaining records for enrollment to educational institutions, to start a new job, and other reasons.

The first group makes up most of the visits. The number of therapeutic visits is determined by the morbidity level according to requests for medical attention and frequency of visits referable to the corresponding nosological forms. To determine the standard, the data referable to patient-initiated visits are adjusted as a result of physical screening of the population which picks up additional chronic disease and pathological states requiring medical care but for which the public did not go to a polyclinic. Specialist physicians submit the data on frequency of visits to expert evaluation.

Morbidity forecasts are used in planning public health development for a future period in order to determine the polyclinic care requirements. We have discussed this question in Chapter 4. When planning for a 5-year period, and especially annual planning, one should proceed from the existing morbidity level. The frequency of visits depends on several causes, such as the nature and severity of illness, presence of complications and concomitant disease, and patient's age, nature of therapeutic measures, effectiveness of therapy, promptness of hospitalization, etc. Also of significance is the activity of the polyclinic (appointments made by the attending physician for recheck visits to the polyclinic and active house calls) and the necessity of writing up medical certificates. The patient's attitude to his own health is also an important factor: in some cases patients who feel better stop going to the doctor to continue and

complete therapy, in others they exaggerate the severity of their illness and this results in frequent and unjustified visits. Practical experience and statistical studies indicate that the frequency of polyclinic visits is subject to considerably greater fluctuations than the analogous index referable to hospital care--mean hospitalization time per patient per bed. However, when the number of cases is large enough, the mean frequency of visits referable to the same diagnosis, specialty and for the polyclinic as a whole is expressed in rather stable statistical indices. For example, when setting the standard of polyclinic care of the urban population using the Saratov and Ivanovo polyclinics as our bases, mean frequency of visits in both cities constituted 2.7 per request for medical attention; the indices of frequency of visits according to age groups are also close.

The frequency of visits is first determined according to diagnoses, then the result obtained is converted into a standard number of visits according to specialties, since only thus can we determine the required volume of specialized medical care.

In most cases, expert evaluation considered the actual frequency of visits to be inadequate and recommended a higher standard.

However, one must take into consideration several factors that diminish the future polyclinic care requirements of the public. We refer, first of all, to the decline of morbidity. Improvement of environmental conditions, better sanitary standards of the public, greater resistance of the organism should lead to a further decline in a number of diseases that occupy a large place in polyclinic activities. They include trauma, pyoderma, sore throat, conjunctivitis, bronchitis, otitis, gastrointestinal disease, etc. In connection with complete coverage of the entire population by dispensary supervision, early detection of disease at the early stages and early initiation of therapy will result in a decreased number of therapeutic visits, decreased duration of therapy, prevention of exacerbations, complications and recurrences. With complete satisfaction of hospital care requirements of the public and broad development of the sanatorium network for the sick there will also be a diversion of significant patient groups from polyclinics, particularly those who are often sick for long periods of time, whose visits presently constitute a large share of the overall volume of polyclinic care. However, further coverage of the sick and essentially healthy groups will require a significant increase in the number of dispensary visits.

In view of all these considerations, in the long-term plan the overall standard of number of visits per resident should be generally left at about the level approved in order No. 870 (9-10 visits), but with some changes referable to specialties, if we consider the projected change in age structure of the population, morbidity structure, as well as the results of recent scientific research dealing with determination of ambulatory polyclinic care requirements. Table 20 compares the existing and recommended standards.

If we distribute the visits according to specialties, as compared to the standards on which order No. 870 is based, there will be

Table 20

STANDARDS OF NUMBER OF VISITS PER URBAN RESIDENT

Specialty	Order 870, USSR Ministry of Health	I.D. Bogatyrev, 1959	A. P. Zhuk, R. M. Ilupina, V. D. Dubrovina, 1961	I. D. Bogatyrev, et al., 1967	S. M. Danyushevskiy, Yu. A. Podvarko, et al., 1967	Protection, depart- ment public health planning, USSR Ministry of Health (G. A. Popov), 1966
Therapeutics	1.9--2.0	2.4	2.9	2.11	2.124	2.5
Surgery	1.4--1.5	0.7	0.8	0.931	1.305	1.4
Obstetrics and gynecology	0.8--0.9	0.6	0.7	0.8	0.75	0.8
Ophthalmology	0.4--0.5	0.4	0.4	0.63	0.65	0.5
Otolaryngology	0.3--0.4	0.4	0.5	0.46	0.66	0.4
Neuropsychiatry	0.3--0.4	0.5	0.5	0.682	0.68	0.66
Phthisiology	0.6--0.7	0.3	0.3	0.26	0.39	0.3
Dermatovenereology	0.6--0.7	0.4	0.4	0.42	0.51	0.4
Stomatology	1.6--1.7	0.8	0.5	1.623	--	2.57
Pediatrics	1.1--1.2	1.4	--	1.36	1.21	1.3
Totals	9.0-10.0	7.9	8.0 (without pediatrics)	9.29	8.27 (without stomatology)	10.7

- 1 Including oncology -- 0.02.
- 2 Including psychiatry -- 0.17.
- 3 Including orthopedic stomatology -- 0.48.
- 4 Including endocrinology -- 0.02 and infectious disease offices -- 0.03.
- 5 Including oncology -- 0.06.
- 6 Including psychiatry -- 0.2.
- 7 Including orthopedic stomatology -- 0.5.

an increase in the number of visits in cities with reference to the two main groups of physicians--internists and pediatricians.

The reduction of standards referable to phthisiology and dermatovenerology is related to the decline in incidence of tuberculosis, venereal and certain skin diseases. The reduction of the standard for surgery is due to the high effectiveness of treatment with antibiotics which requires fewer visits, lower incidence of suppurative surgical disease, as well as the possible decline of traumatism. One should proceed toward decreasing the population size per therapeutic and pediatric district. Such an increase of the standards of ambulatory and polyclinic care referable to general medicine and pediatrics is dictated by the need to decisively improve district services to the adult and child population, and to provide dispensary supervision for the entire population in which the district therapeutists and pediatricians will play the leading part.

Dispensary coverage of the entire population is not developing as a supplement to the existing forms of polyclinic care; rather, as a consistent evolution thereof into a higher form against the background of lower morbidity, with complete satisfaction of hospital care requirements and with a high level of sanitary standards.

Dispensary care of the entire population included comprehensive, systematic and continuous observation of the physical condition of the public throughout the life of the Soviet people, hygienic education of the public with due consideration of working and living conditions, age and sex, individual distinctions, early detection of disease and prompt administration of therapeutic and preventive measures.

Dispensary care is a factor in the further lowering of morbidity and preventing the onset of disease.

At the present time there are two directions of dispensary supervision: dispensary care of patients according to groups of nosological forms and dispensary supervision of the healthy population. In the case of complete dispensary coverage of the entire population, a distinct line cannot be drawn between these two directions.

Dispensary supervision of patients suffering from specific nosological forms of disease is implemented by specialized dispensaries (for tuberculosis, neuropsychiatric disease, malignant neoplasms) and polyclinics (essential hypertension, peptic ulcer, rheumatism, glaucoma, etc.)

In view of the inadequate dispensary coverage of individuals suffering from specific nosological forms of disease, gradual expansion of the dispensary covered groups should proceed primarily in the direction of fully meeting the requirements with reference to dispensary care of patients suffering from such diseases.

Growth of a healthy generation--builders of a communist society--depends largely on fulfilling the task of dispensary coverage of the

healthy population. The main objective of dispensary supervision of the healthy population is the early detection of disease to make it possible to treat it effectively at the early stages, as well as hygienic education of the public, in accordance with age-related and individual distinctions of each person, as well as working and living conditions.

Dispensary supervision of healthy groups covers children up to 3 years of age, children attending nursery schools, students, working adolescents, pregnant women, specific groups of industrial workers, agricultural machine operators, and certain other groups.

In addition to regular dispensary supervision, public health agencies implement simultaneous mass screening of specific population groups.

All of the sick cases picked up through these special-purpose screenings are put on the dispensary rolls for treatment at polyclinics or specialized dispensaries.

Although pathology is picked up in an extremely negligible number of the individuals examined, the diseases that are picked up through the special-purpose screenings occupy a significant share of the overall number of diseases that are detected.

At the present time, tests are in progress to replace multiple special-purpose screenings with comprehensive preventive check-ups. With complete coverage by regular dispensary supervision of the entire population, there will be no necessity for such mass-scale preventive check-ups since each healthy individual must be examined by his district physician in the course of the year, as part of the dispensary plan. When necessary, the district therapist refers an individual under dispensary supervision to the appropriate specialist.

Bearing in mind fulfillment of order No. 136-m, dated 7 September 1957 and issued by the USSR Ministry of Health, which approved the roster of industries and professions the employees of which are subject to preliminary and regular physical examinations (and additional orders on this subject), a considerable number of industrial workers are submitted to check-ups annually. The further expansion of groups subject to dispensary supervision of industrial workers should proceed mainly with reference to workers in the main occupations, as well as engineering and technological personnel and workers engaged in new branches of industry.

The development of standards for dispensary supervision is a rather complex task. Dispensary care consists of several elements: definition of groups subject to dispensary supervision, putting them on the rolls, regular observation of those under dispensary care, and implementation of the necessary therapeutic and prophylactic measures. All these elements must be in a proportionate relation to one another. For example, conducting physical examinations of the

public or specific groups without subsequent registration of the sick cases detected, or without organizing systematic dispensary supervision for them (as has often been the case in practice), does not yet signify true dispensary care. Similarly, dispensary care cannot be considered satisfactory if it amounts merely to periodic visits to the doctor, when it is impossible to implement the necessary health-improving and therapeutic-preventive measures. All this must be taken into consideration when planning the extent of coverage of the population with dispensary supervision.

The criterion of volume of activities referable to dispensary supervision is the number of dispensary visits which is part of the overall number of polyclinic visits and, consequently, is part of the standard of polyclinic care for the public.

This standard consists of the following parts: 1) determination of groups subject to dispensary supervision; 2) determination of specialty of physicians implementing dispensary supervision; and 3) establishing the frequency or number of visits per year referable to each specialist physician.

The dispensary supervision standards also include such indices as number of laboratory, x-ray and electrocardiographic examinations.

Only recently have we begun to be concerned with the question of required number of dispensary visits. The difficulty of this problem is, in particular, that the statistical records dealing with public health contain information only about the number of individuals under dispensary care, whereas the number of dispensary visits made is not singled out of the overall number of polyclinic visits. There are quite a few methodological instructions dealing with dispensary care, issued by the ministries of health of the USSR and Union republics, public health agencies of large cities, scientific research institutes and chairs of public health organization at medical institutes. When working out standards for dispensary supervision, one should proceed from the fact that the transition to dispensary coverage of the entire population is related not only to the increase in number of polyclinic visits, but also to a change in their structure. While, at the present time, dispensary supervision refers only to some groups of individuals and some nosological forms, when we achieve universal dispensary care it will become the main method of not only polyclinic but also all therapeutic and preventive care. The rift between the standards for therapeutic and dispensary visits is not only a serious methodological error, it also leads to significant exaggeration of the polyclinic requirements of the public. Quite often, the leading role of district physicians, pediatricians and therapists is underestimated with regard to implementing dispensary supervision; as a result there is an overestimated number of dispensary visits to physicians in other specialties. The role of regular, comprehensive medical work-ups by different specialists is overestimated in implementing dispensary supervision of essentially healthy individuals. It is unlikely that comprehensive medical examinations of the entire population or specific age groups will be the main method in the future (the so-called

general line of dispensary supervision when the entire population is covered). The fact that specialists would concentrate on mass screening of healthy individuals would distract them from regular therapeutic and preventive work with the individuals for whom this is mandatory. At the same time, continuity of observation of groups subject to dispensary supervision and the dynamics of their health status would not in essence be provided, since it would be based exclusively on brief entries in medical records rather than personal knowledge by the physician of the individuals examined. It is rather schematic and arbitrary to divide the entire population into two sharply distinct groups from the standpoint of dispensary care--the sick and essentially healthy. We know that we include among essentially healthy individuals those who are weak, subject to frequent illness, those who are in a premonitory state, with a borderline physical condition, those who have sustained serious illness or surgical intervention, etc. They are not classified with the sick individuals; however, such groups definitely require dispensary supervision.

We consider it purposeful to recommend the following system of dispensary supervision.

1. Dispensary supervision of essentially healthy individuals is implemented under the guidance of district therapists and pediatricians who are directly involved in observing such people within their specialty (pediatrics, general medicine), and who furnish an overall evaluation of their physical condition, outline health-improving and therapeutic-prophylactic measures, determine the need for certification of each individual by other specialists. General practitioners and pediatricians examine the groups that they service at least once a year, and more often for certain age groups (children up to 3 years old, working adolescents).

To implement these requirements, there are two mandatory conditions: a) broader qualifications of the general practitioner and pediatrician so that they can competently evaluate allied disease and the general physical condition; and b) further breakdown of therapeutic and pediatric districts.

2. Dispensary supervision of healthy individuals by other specialists is conducted following this procedure: a) by stomatologists, annual inspection of the teeth and mouth, starting at 12 months of age; by obstetricians and gynecologists, annual examination of women starting at the age of 20 years; by ophthalmologists, annual examination of the entire population starting at 40 years of age; b) by surgeons, otolaryngologists, ophthalmologists and neuropathologists at certain ages among children and youth (7, 11, 16 and 19 years); c) general practitioners refer individuals from the groups that they service, who in their opinion require regular observation by other specialists (the specialists may either treat them in the case of illness, or enroll them for dispensary supervision as sick individuals, or put them on the dispensary rolls for a certain period of time as healthy individuals subject to dispensary observation); and d) pregnant women, and workers in specific occupations who are subject to periodic examination by the appropriate specialist, in accordance with the standards set by the USSR Ministry of Health.

Table 21

REQUIRED VOLUME OF PROPHYLACTIC PHYSICALS FOR ESSENTIALLY
HEALTHY INDIVIDUALS IN YELGAVA, LATVIAN SSR (VISITS PER 1,000
POPULATION) in 1962 (NOT COUNTING STOMATOLOGY)

Specialty	Indications for examination			Total
	Occupation	Age	Physiological signs	
General medicine	304.6	189.4	36.3	530.3
Pediatrics	--	655.9	--	655.9
Surgery	43.0	168.0	--	211.0
Otolaryngology	47.6	162.6	--	210.2
Ophthalmology	44.2	335.9	--	380.1
Phthisiology	85.9	--	--	85.9
Neuropathology	48.1	27.9	--	76.0
Dermatovenereology	213.9	--	19.9	233.8
Obstetric. & gynecology	0.9	84.6	65.6	151.1
Oncology	--	45.8	--	45.8
Totals	788.2	1,670.1	121.8	2,580.0

Yu. A. Podvarko, who made a study of groups of healthy individuals subject to dispensary supervision and periodic preventive examinations in accordance with the existing statutes in Yelgava, Latvian SSR, and of the frequency of dispensary visits, obtained the results shown in Table 21.

As for dispensary supervision of the sick, groups of such individuals are presently referable to a certain range of protracted diseases. These groups differ somewhat in different republics and oblasts, but in essence, the diagnoses of illness for which dispensary supervision is provided have been determined. We submit here a list of diseases subject to dispensary supervision, in accordance with the complex system proposed by the chair of public health organization at Perm' Medical Institute and the chief specialists of the Perm' Municipal Health Department.*

*"Organization of Dispensary Care of the Public," a methodological letter, Perm', 1963.

Internal pathology: essential hypertension (grades I, II, III), angina pectoris, prior myocardial infarction, peptic ulcer, rheumatic lesion to the myocardium, achylous gastritis, chronic dysentery, infectious hepatitis, pathology of the liver and gallbladder, diabetes mellitus, endemic goiter (regional pathology).

Childhood diseases: hypotrophy, rickets, pneumonia, rheumatism, chronic tonsillitis, cholecystitis, opisthorchiasis, nephropathy, diabetes mellitus, blood disease, premature babies, children who have had infectious hepatitis and dysentery.

Gynecological pathology: inflammatory disease of internal reproductive organs, precancer states, benign tumors of female reproductive organs, descent and prolapse of reproductive organs following cesarean section.

Surgical pathology: endarteritis obliterans, thrombophlebitis, chronic osteomyelitis, varicose veins, neoplasms, prolapse of the rectum.

Neurological pathology: lumbosacral radiculitis, acute disorders of cerebral circulation, tickborne encephalitis, consequences of traumatic pathology of the spinal cord.

Dermatological pathology: eczema, occupational dermatosis, erythematosis, psoriasis, dermatophytosis.

Eye pathology: glaucoma, oncological pathology of the eye, tuberculous pathology of the eyes, trachoma, myopia.

Pathology of the ear, nose and throat: chronic otitis and chronic tonsillitis.

Pathology of the teeth and mouth: periodontitis, recurrent aphthous stomatitis, ulcerative stomatitis, leukoplakia, precancer pathology, congenital deformities and anomalies referable to bite and arrangement of teeth.

This list does not include oncological pathology, and tuberculosis and mental illness for which dispensary care is administered by specialized dispensaries.

The above list of diseases corresponds in essence to the list of diseases referable to different specialties, for which dispensary supervision should be provided in accordance with the recommendations of the chief specialists of health ministries of the USSR and Union republics and specialized scientific research institutes. Scientific research dealing with determination of specialized medical care requirements of the public, presently in progress in several Union republics, will further define both this roster and the standards of frequency of visits as related to dispensary care referable to the most important nosological forms.

When planning the groups subject to dispensary supervision in connection with morbidity, one should bear in mind that a considerable number of people, particularly of an elderly age, present multiple diagnoses which are occasionally closely interrelated. This should be borne in mind particularly in dealing with the rather important question of the order in which changes should be made to complete coverage of the population with dispensary supervision.

With regard to the stages in the transition to universal dispensary supervision, one should adhere to the principle of gradual increase in groups, along with gradual improvement of quality of dispensary supervision.

Quantitative expansion of coverage without simultaneous improvement of quality will not resolve the problem of universal dispensary coverage as set forth in the Party program.

We consider it unnecessary to broaden significantly the range of diseases for which it is presently recommended to establish dispensary supervision, and to extend it to all cases of prolonged pathology. The duration of an illness in itself does not yet serve as a cause to establish dispensary supervision in accordance with clinical indications. What is important is the nature of course of illness, its tendency to progress in the absence of regular observation, the possibility of effective use of measures of so-called "secondary prophylaxis." In all other cases, dispensary supervision for individuals who are sick for long periods of time differs little in principle from dispensary supervision of all population groups.

In the future we shall have to retain dispensary supervision for the main groups of industrial and agricultural workers, and for individuals who work in specific industries and under unique working conditions, and in the future we shall have to gradually broaden the groups subject to dispensary supervision, particularly in view of the development of new branches of industry.

First of all, there should be complete dispensary coverage of all groups of child population, including the so-called "unorganized groups" of preschool children. It is also extremely important to devote attention to the need for dispensary coverage for all adolescents, for young men and women up to 18 years of age, taking into consideration several circumstances: the particular vulnerability of this transitional age, the task of providing for continuity between the pediatric and general medical service, the possibility of prompt implementation of the necessary health-improving measures, as well as for detection of the groups that would be subject to subsequent dispensary supervision as adults.

As for the further stages of dispensary supervision, it is important to call attention to the age groups of 40 years and older. This is an age when protracted disease is observed the most often; early detection and prompt treatment thereof is important, particularly with reference to cardiovascular system pathology and oncological pathology. In the future, dispensary supervision should be extended to all age groups.

Chapter 6

STANDARDS OF THERAPEUTIC AND PROPHYLACTIC CARE OF THE RURAL POPULATION

The CPSU program has spelled out tremendous transformations in the next 20 years in the area of agriculture. There will be a considerable increase in the productive forces of agriculture and its technical level will be raised.

The powerful rise of productive forces of agriculture will implement the gradual transition to communist social relations and elimination of differences between urban and rural areas. As stated in the CPSU program, "under communism there will be no classes, the differences between socioeconomic, cultural and living conditions of urban and rural areas will disappear; with reference to development of productive forces and nature of labor, forms of industrial relations, living conditions, and conveniences to the public, the village will rise to the level of the city" (1).

Further increase in the productivity of labor in agriculture and enlargement of kolkhozes, the gradual formation of agrarian and industrial associations in which agriculture will be organically combined with industrial processing and of its production, and development of cultural and municipal institutions in kolkhozes will all result in further enlargement of rural populated centers. It is stated in the CPSU program that "gradually, kolkhoz villages and towns will be transformed into larger populated settlements of the urban type with conveniences provided in housing, municipal services, public enterprises, cultural and medical institutions. Ultimately, the cultural and living conditions of the rural population will be the same as those of the urban population" (2).

The 23rd Congress of the CPSU, in directives pertaining to preparation of the 5-year plan for development of the USSR national economy in 1966-1970 deemed it mandatory "... to provide for measures to further equalize the standards of living for the rural and urban population, overcoming the socioeconomic differences and differences in the standard of living between cities and villages; there will be even more strengthening of the union between the working class and peasants, unity of the entire Soviet people" (3). Thus, fulfillment of the 5-year plan of development of the USSR national economy for 1966-1970 will constitute a significant step toward implementing the tasks in this area set forth in the CPSU program.

The CPSU program has formulated the task of satisfying in full the requirements of the entire urban and rural population with reference to highly qualified medical care--coverage by dispensary supervision of the entire population of our country. This will require implementation of major measures to broaden and improve medical care for the rural population.

Main Stages of Development of Planning Medical Care for the Rural Population

Even in zemstvo times, a district system was created for medical care of the rural population adapted to the conditions of individual peasant farming. The rural medical districts were islands of qualified medical care in the endless sea of villages and towns separated from one another by large distances and bad roads.

The extent of medical care diminished with increases in distance from the so-called high-density settlement. Among the rural district physicians there were some good specialists--surgeons, obstetricians and gynecologists, ophthalmologists--but in essence the care remained general and indifferent.

The active figures of zemstvo medicine conceived of growth of the rural medical network by means of increasing the number of rural medical districts with corresponding reduction of their radius of activities. This should have resulted in reaching a so-called "normal" service radius that would provide the most accessible medical care for the rural population.

During the early years of Soviet power, the district principle of constructing rural medicine remained essentially unchanged, and this also applied to the basic principles of administrative and territorial division. The number of rural medical districts increased. While there were 4,400 rural medical districts in 1913, there were already 7,500 in 1928.

Governed by the objective of developing the preventive direction in the work of the rural medical district, the Soviet public health figures made some additions to the system of its activities; however, the organizational principles of building rural medicine rested on the former foundation.

In the late 1920's and early 1930's, a new administrative division of the territory was made to meet the requirements of agricultural and cultural construction in rural areas, as it would apply to new conditions that occurred primarily with the transition to collectivized agriculture.

The administrative rural rayon center, which was created instead of the small volost entity that was left as a legacy from prerevolutionary Russia, became the center of Party and Soviet administration, and the economic and cultural center of the rayon. It also became a center for organizing rural public health.

The new territorial division and the requirements set forth as a result of the collectivization of agriculture revived the search for new organizational forms and types of institutions that could provide qualified and specialized care for the rural population. Attention was focused on the creation and strengthening of the rural rayon medical organization.

In the public health development plan for the first 5-year period developed by the RSFSR Narkomzdrav in accordance with the optimum variant of the national economic plan, and in the indications of the USSR Gosplan for the second 5-year plan of national economic development, rayon division served as the basis for development of the medical network in rural areas.

The RSFSR Narkomzdrav planned for the opening of hospitals with 40 to 120 beds at the rayon centers, with varying degrees of development of specialized types of medical care depending on the extent of prospects and development of collectivization in the rayon, its economic importance and population size of the rayon center.

The strongest medical network was planned for rayon centers with well developed kolkhoz movement and large sovkhoses--an 80-120 bed-hospital with walk-in office.

The indications in the USSR Gosplan for the second 5-year plan of development of the USSR national economy stipulated: "Development of the network of therapeutic institutions should proceed in the direction of creating an enlarged medical and health base in the rayon center which would include a hospital and polyclinic, as well as pediatric institutions. Branches of this base in outlying parts of the rayon would be medical centers with paramedical personnel and institutions of the ambulatory type to render first and emergency medical aid. It is becoming particularly important to improve services to sovkhoses, MTS [machine and tractor stations] and kolkhozes with regard to the principal types of hospital care, and first of all with reference to infectious, maternity and surgical beds" (4). These indications could not be implemented completely at that time, since the material base of Soviet public health was still extremely weak. However, it is important to note that even with the first steps toward collectivization of agriculture and in connection with the new territorial subdivision, the workers in Soviet public health raised the question of reorganizing medical care for the rural population in accordance with the rayon principle. Even in the 1930's, some practical results were obtained in this direction.

At that time, medical care for the rural population developed with a combination and correlation between the rayon and district levels, and the rayon level provided qualified and specialized medical care in the main specialties, while the district level provided for closer accessibility to the public of undifferentiated forms of medical care--general practitioner or therapist. Concurrently, there was an annual increase in share of medical care rendered to rural residents, particularly hospital care, in urban settlements.

A decree was issued by the USSR Sovnarkom on 23 April 1938 dealing with "strengthening the rural medical district" (5). The attention of public health agencies was called to strengthening the lowest level of the rural medical network, which should have brought medical care closer to the rural population.

After the war, the rayon level occupied the main place in resolving tasks pertaining to development of health care in rural areas. Such measures as assignment of physicians to all posts of rayon health department heads, training specialists for rural rayon hospitals at large oblast and municipal hospitals were implemented. The unification of hospitals and polyclinics and elimination of independent walk-in centers and other small institutions at the rayon center, reorganization of public health management in the rayon and delegation to the chief physician of the rayon hospital of the function of head of the rayon health department results in further strengthening of rayon hospitals.

Thus, the existing system of medical care of the rural population was formed and strengthened, with the rayon hospital and its main forms of specialized medical care in the center, and a network of rural district hospitals and walk-in offices in outlying regions. Strengthening of the rayon level played a beneficial role in broadening qualified specialized medical care for the rural population.

In summarizing the general results obtained by rural public health in the years of Soviet power and, in particular, in the last 20 years, we must state that there were major beneficial changes.

There has been a significant increase in the volume of medical care rendered to the rural population, the network of medical institutions in rural areas has grown; there has been broad development of specialized medical care in rural areas and better technical equipment of rural and, first of all, rayon hospitals; the ways and means of operating medical institutions in urban and rural areas have become similar.

The dispensary system is finding increasing application in rural public health; this also applies to expert determination of temporary disability and invalid status, and preventive examination of the public.

With each year, more and more medical care is rendered to the rural population by urban medical institutions. An increasing number of rural rayon centers are being transformed into settlements of the urban type. Urban hospitals and polyclinics are intensifying their role as organizational-methodological consultant centers and bases for the training and advancement of medical personnel for rural areas.

In spite of all these accomplishments, medical care of the rural population is still behind the level of medical care rendered to the urban population according to the indices of level of hospital and polyclinic care, qualifications and specialization of medical care, state of the material base and technical equipment, and availability of medical personnel.

The enlargement of administrative regions has resulted in substantial changes in the structure of the public health network and in the nature of correlations between different levels of medical services to the public. In a large region with 50,000 or larger population, it is feasible to build a comprehensive system of medical services to provide the people with qualified and specialized medical care.

As a result of the reorganization that is in progress, the medical network servicing the rural population, which also includes services to the inhabitants of urban settlements under rayon jurisdiction, consists of the following elements: a) a base network of public health institutions of the rayon which includes a central rayon hospital with polyclinic, dispensary, sanitary and epidemiological station, and other medical institutions of the rayon center, as well as institutions of overall rayon importance (sanatorium, specialized hospitals) that are not located within the boundaries of the rayon center. The general [multispecialty] central rayon hospital occupies the main place in the network of such institutions; intrarayon (numbered rayon) hospitals. These are essentially rayon hospitals of administrative areas that have been eliminated, as well as some of the former large district hospitals. They are involved in a specific service range within the administrative rayon, covering several populated settlements. The hospitals are unified with polyclinics with office hours in the main medical specialties; and c) there is a more or less dense (depending on population density and placement of populated centers) network of medical institutions within the service area of a numbered rayon polyclinic which are the level of medical care that is closest to the rural population. They render general, pediatric, obstetric and dental care, and they implement essentially dispensary supervision of the rural population. These are district hospitals and feldsher-midwife centers.

The oblast hospitals develop into large scientific research institutions that implement scientific and methodological supervision of the work in the entire network of medical institutions in the oblast; they render consultant and highly qualified medical care, and they are bases for the training and advancement of physicians.

However, even this structure is not the final one in the long-term plan. Subsequent changes will be related to the forthcoming constructions of large central rayon hospitals, as well as enlargement of rural populated settlements.

Hospital Care Planning in a Rural Rayon

The decree of the CC CPSU and USSR Council of Ministers dated 14 January 1960, "Measures for Further Improvement of Medical Care and Health Protection for the People of the USSR," devotes much attention to further improvement of medical care for the rural population.

This decree proposed to enlarge rural rayon hospitals and increase the number of beds in them to 100-200 or more, supplying them with modern medical equipment and staffing them with physicians in all the main specialties: general medicine, surgery, pediatrics, obstetrics and gynecology, stomatology, etc., as well as to strengthen the sanitary and epidemiological branches of these hospitals. Approval was voiced for the initiative of progressive kolkhozes who are building medical institutions at their own expense.

Order No. 395, dated 31 July 1963, issued by the USSR Ministry of Health, "Concerning the Status and Measures for Further Improvement

of Hospital Care for the People of the USSR," provides for the following steps to deploy a network of hospitals servicing the rural population in the near future: a) to take steps to construct multispecialty republic-level, kray and oblast hospitals with 600, 800 and 1,000 bed capacities, as well as reconstruction and enlargement of existing hospitals; b) to implement in the next few years the plan for construction of new central rayon hospitals, mainly with 300-400 beds each, as well as reconstruction and enlargement of existing ones; c) to continue strengthening and improving the work of rayon hospitals; d) to continue work dealing with enlargement of rural district hospitals where this is purposeful and necessary; and e) to reorganize, within the next few years, rural district hospitals with 15 beds or less in feldsher-midwife centers, where there is no plan to enlarge them or when their subsequent existence may not be necessary, with the exception of areas in the Extreme North, virgin lands, areas of transhumance farming and some parts of Siberia and the Far East. The decisions of the 23rd CPSU Congress have confirmed the task of developing a network of large multispecialty municipal and rural rayon hospitals and polyclinics capable of rendering specialized medical care.

What are the therapeutic and prophylactic requirements of the rural population? The main theses expounded in Chapter 5, with reference to standards of therapeutic and prophylactic care of the rural population, can also apply in substantiating the standards of therapeutic and preventive care for the rural population. There are no established standards of hospital care for the rural population. There are few scientific works dealing with this question and they are usually inferior in quality to the works dealing with determination of urban medical care requirements.

In 1955, I. I. Rozenfel'd, in the second part of his work entitled "Fundamentals and Methods of Public Health Planning," and in the reference book for physicians entitled "Public Health Organization in the USSR," edited by Professor N. A. Vinogradov, wrote that with a mean level of requirement and the most common accessibility conditions for hospital care of the rural population, 6-7.5 beds per 1,000 population will be required, and they should be distributed over the territory in approximately the following manner: 1) 2-2.5 beds to provide hospital care at the first stage, i.e., to organize district hospitals; 2) 2-2.5 beds for specialized hospital care at the second stage, i.e., hospitals in the rayon center; and 3) 2-2.5 beds for qualified medical care of the rural population in urban hospital institutions.

According to the studies of the staff of the chair of public health organization, Vinnitsa Medical Institute, under the supervision of Professor L. G. Lekarev, referable to data for three rural rayons of Vinnitskaya Oblast, rural hospital care requirements fluctuated over a wide range, from 5.4 to 8.36 per 1,000 population. In a paper delivered by L. G. Lekarev at the 4th scientific session of the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, in 1961, the thesis was expounded that to meet the existing hospital care requirements of the rural population it is necessary to have 6-7 beds per 1,000 population, 3 of which in a rayon hospital and 4 in district hospitals, not counting beds at the oblast hospital in other oblast-level institutions.

A team of scientists at the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko (P. I. Kal'yu, B. M. Matsko, Ye. D. Zagorskaya, Ye. A. Loginova, S. Ye. Il'in, O. N. Stel'makh), in their work dealing with medical care requirements of the rural inhabitants of four rayons of the Russian Federation (Bobrovskiy Rayon of Voronezhskaya Oblast, Vetluzhskiy Rayon of Gor'kovskaya Oblast, Spasskiy and Shilovskiy rayons of Ryazanskaya Oblast), define the hospitalization requirements of the rural population as 15% of the population size and hospital bed requirements as 6 beds per 1,000 population.

V. I. Kant, in his works published in 1961 and 1962, defines the hospital bed requirements of the rural population of Moldavian SSR as 8.2 beds per 1,000 population, with the following distribution according to stage of servicing: 4.7 beds in district hospitals, 2.8 beds in the rayon hospital, and 0.7 bed in republic-level hospitals.

The consistent increase in availability of hospital care to the rural population has now resulted in the fact that most of the above-mentioned plans have already been achieved and in some Union republics they have been exceeded.

In 1964, the USSR mean was 7.2 beds per 1,000 rural population. The index of hospital bed availability to the rural population was the same as the index for urban population services in Belorussia, Latvian and Estonian SSR. In the future, in view of construction of large central rayon hospitals, enlargement of rayon and rural district hospitals, and bearing in mind the fact that the rural population size is not increasing, there will be an increased level of availability of hospital care to the rural population. In the 1970's, the same level will be reached with regard to hospital care for the urban and rural population.

In planning hospital care availability to the rural population, it is not enough to compare the total number of beds to population size; one must also take into consideration the distribution of population in the rayon.

Determination of rayon population hospital requirements and planning of the network of beds in a rayon should be estimated for the entire population of the rayon, without dividing it into urban and rural, since in most rayons, along with rural areas, there is a certain number of cities and towns of the urban type under rayon jurisdiction that cannot have their own independent network apart from the overall network of rayon and district hospitals.

We have tried to distribute the hospitalized rural population and the entire population of rayons among three levels of hospitalization (district, rayon and oblast levels) according to the statistical records, and with some degree of approximation. We adhered to the following methods: 1) number of residents hospitalized in rural district and rural rayon hospitals, as well as in rayon hospitals in certain cities that are rural rayon centers, with distinction of rural patients hospitalized there as indicated in the records. (All

urban residents hospitalized in such hospitals are referred to the rayon population); 2) hospitalization of rural residents in all other types of hospitals in cities is indicated in the records; and 3) hospitalization of the urban residents of different rayons in all types of hospitals as a whole is considered in accordance with their share to the total population of the rayons.

When classifying different types of hospitals as belonging to the oblast, rayon and district levels, we adhere to the following method:

1) Oblast hospitals, special hospitals, medical VUZ clinics, hospitals of scientific research institutes are classified as the oblast (republic) level.

2) Municipal hospitals and dispensary hospitals in cities are arbitrarily distributed among the oblast and rayon levels.

3) Rayon hospitals of rural rayons with an urban center and in rural areas, maternity homes in towns, all special hospitals in rural areas are classified as the rayon level of hospitalization.

4) Only rural district hospitals are referred to the district level.

The percentage of errors possible with such classification is negligible, and would not influence the general nature of proportions of hospitalization on the oblast, rayon and district levels. Using this method, we estimated the distribution according to the levels of rural hospitalizations and of the entire population of different rayons of the Soviet Union in 1964 (Table 21a).

Table 21a

	<u>In cities</u>	<u>Rural areas</u>	<u>Total</u>
Central rayon hospitals	167.0	53.4	220.4
Other rayon hospitals	73.6	70.1	143.7
Rural district hospitals	--	302.0	302.0
Totals	240.6	425.5	666.1

In the Soviet Union, the rayon and district levels occupy equal places with regard to rural hospitalization level, constituting 41.8 and 41.7%, respectively; and 16.5% are hospitalized on the oblast level. Of all the hospitalized rayon residents, 50.1% are hospitalized on the rayon level, 34.1% on the district level and 15.8% on the oblast level. The same estimate can be made for each Union republic.

In the future, with the construction of large central rayon hospitals and the elimination of small district hospitals, there will be an increase in share of the rayon level of hospital care.

The 1966-1970 plans for development of hospital care for the rural population provides for further significant approximation of the hospitalization levels referable to the urban and rural population. This will be achieved by further growth of the hospital network in rural areas and increased hospitalization of rural residents in urban hospitals, mainly in oblast hospitals and central and other rayon hospitals located in urban settlements. Accordingly, there will have to be a change in proportion of the bed resources in different levels within a rayon. Thus, a total number of hospital beds in rayon and district hospitals constituted 666,100 in 1964, and they were distributed as shown in Table 21a.

In the future, there will be a change in this distribution of bed resources in the rayon among central, numbered rayon and district hospitals. There will be an increased share of beds in central rayon hospitals, and a share in district and other rayon hospitals will diminish.

Organization of large oblast hospitals with all types of highly qualified and specialized medical care, creation of a network of central rayon hospitals, and the enlargement of rayon and district hospitals will result in significant improvement of services rendered to the rayon's inhabitants and, in particular, to the rural population, with respect to medical care in the hospitals. At the same time, about one-third of the rural population will still be serviced by rural district hospitals of which most will have 25-30 beds.

The level of hospital care reached in 1970, and the enlargement of rayon and district hospitals will be the starting point to implement in the second decade a radical reconstruction of the network of hospitals and optimum placement thereof, to fulfill the task set forth in the CPSU program of completely meeting the requirements of the entire urban and rural population with respect to highly qualified medical care.

The question of rational arrangement of the network of hospitals to service the inhabitants of a rayon should be resolved in different republics and oblasts in relation to a number of conditions, in particular: 1) overall population size of the rayon, distribution among urban and rural population, population size of the rayon center; 2) territory of the rayon, population density, settling of the population in the rayon (population size and density of populated areas), and means of communication; 3) economic characteristics of the rayon, direction of agriculture, existence of industrial enterprises; 4) availability to the inhabitants of the rayon of hospital care as a whole and in different specialties within the rayon and beyond it, including oblast (republic) and urban hospitals; and 5) status of the network of hospitals in the rayon, their location in the rayon, service range, distribution of hospitals according to number of beds as a whole and in different specialties, condition of hospital buildings.

The magnitude of the indices determining the plan of placement of hospitals in a rayon is notable for wide diversity, and it varies in different republics and oblasts, and in different rayons of the same republic or oblast.

For this reason, we cannot devise a standard system of locating hospitals and bed resources that would be suitable for the entire territory of the Soviet Union. However, we can and we must define the principal patterns and views with regard to location of the hospital network in a rayon in order to provide the most qualified and specialized medical care to the inhabitants of the rayon.

We believe that in planning the development of public health and, in particular, the hospital network on the rayon level, one should proceed from the following views:

1) All of the principal types of specialized hospital care should be provided within the rayon. All of the general demographic indices, particularly population density, as well as the nature of settling, should be assessed with due consideration of the importance of the rayon as an administrative territorial entity that provides the population with all types of cultural and public services, including medical care. Let us explain this on an example. With respect to indices of rural population density, the Ukrainian and Armenian SSR have similar indices, 46.1 and 42.6 people per square km, respectively. However, the mean rural population size in these republics varies: it constitutes 55,300 in Ukrainian SSR and only 29,800 in Armenian SSR. Evidently, both construction of the network and placement of hospitals may vary in these republics. We arrive at the same conclusion if we compare Uzbek and Latvian SSR. In these republics, the rural population density is the same: 23.3 people per square km in Uzbek SSR and 21.6 in Latvian SSR. At the same time, the mean population of an Uzbek rayon is 77,000 and in a Latvian rayon it is only 41,000 people. Obviously, these differences are not a chance occurrence; rather, they developed under the influence of a number of historical, geographic and economic conditions. Table 22 illustrates the correlation between population density, rayon radius and territory, and rayon rural population size in different Union republics.

2) The plan for public health development on the rayon level and, in particular the plan for placement of the hospital, as well as ambulatory polyclinic network should be developed in conjunction with the overall national economic plan for the region and, first of all, with the long-term plan for developing enlarged populated areas of the urban type in the area in accordance with the tasks set forth by the CPSU program. Distinction of "projected" [or promising] settlements should of course be taken into consideration when planning the location of medical institutions in a rayon.

3) There should be systematic enlargement of the hospital network, and first of all development of large central rayon hospitals. Construction of new central rayon hospitals, in accordance with the indications of the USSR Ministry of Health, should provide for at least 250-400 beds in each. The central rayon hospital gains the importance of the leading level not only of rendering hospital care but also of all public health in the rayon. In the future, with the development of public health in a number of rayons covering a small territory and with overall rayon population size not exceeding 40,000-

Table 22

AREA AND RURAL POPULATION DENSITY OF DIFFERENT REGIONS AS OF 1 JANUARY 1966

Union Republics	Area (thousands of square km)	Number of rayons	Mean rayon area (thousands of square km)	Mean rayon radius (km)	Mean rural popu- lation of rayon (thousands)	Rural population density (people per sq. km)	Required number of hospital beds in rayon
RSFSR	6,873.0	1,627	4.2	37	31.6	7.5	300-350
Ukrainian SSR	492.0	394	1.2	20	55.3	46.1	550-600
Belorussian SSR	136.0	100	1.4	21	52.3	37.8	500-550
Uzbek SSR	292.0	89	3.3	33	77.0	23.3	750-800
Kazakh SSR	2,006.0	151	13.3	65	42.0	3.1	400-450
Georgian SSR	46.0	66	0.7	15	36.5	52.1	350-400
Azerbaydzhan SSR	67.0	60	1.1	19	38.9	35.4	350-400
Lithuanian SSR	47.0	44	1.1	19	37.5	32.3	350-400
Moldavian SSR	30.0	26	1.2	20	92.9	77.4	900-950
Latvian SSR	39.0	21	1.9	25	41.0	21.6	400-450
Kirgiz SSR	149.0	29	5.1	40	56.3	11.0	550-600
Tadzhik SSR	88.0	36	2.4	28	46.2	19.3	450-500
Armenian SSR	23.0	33	0.7	15	29.8	42.6	250-300
Turkmen SSR	308.0	34	9.0	52	28.6	3.2	250-300
Estonian SSR	27.0	15	1.8	24	32.1	17.8	300-350
Total for USSR	10,614.0	2,725	3.9	35	39.2	10.1	350-400

50,000 people, all hospital care in the rayon can be concentrated in the central rayon hospital.

4) It is imperative to strengthen the existing network of hospitals (formed in the course of history) within the territory of the rayon, increasing the specialization and qualification of medical care. In some cases, one should plan to enlarge numbered rayon and rural district hospitals. By order of the USSR Ministry of Health, No. 395, only district hospitals with fewer than 25 beds are subject to elimination. Reorganization of the hospital network on the rayon level should proceed gradually, on the basis of a consistent increase in scope and improvement of quality of medical care to the population of the rayon and particularly the rural population.

Evidently, in the course of further development of medical care to the rayon population of the USSR and scientific generalization of practical experience, specific types of locations of the hospital network in the rayons will emerge, in accordance with geographic, demographic and economic distinctions of different geographic zones and economic regions.

Table 22 submits data pertaining to the size and mean radius of rural rayons of the USSR in different Union republics, as well as mean rural population size and density in different rayons. As of 1 January 1962, the population of urban settlements under rayon jurisdiction constituted about 25% of the total rayon population (6).

We do not have more recent information.

The statistical records include data concerning the distribution of beds in rayons among central rayon hospitals and other rayon and district hospitals according to specialties. Taking this into consideration, as well as the future plan of development of the hospital network in rayons, we can establish the requirements as to placement of the bed resources in rayons, according to specialties.

Even now, over half of all the hospital surgical care and care referable to the so-called narrow specialties is concentrated in the central rayon hospitals which contain about 30% of all the beds of rayon and district hospitals. Conversely, general medical and obstetric care is rendered primarily in other rayon and district hospitals, i.e., in hospitals that are closer to the people. Pediatric and infectious hospital beds are distributed about evenly; however, their share is considerably greater in central rayon hospitals than in other rayon and district hospitals. As for beds for tuberculosis patients, their location primarily outside rayon centers is attributable to the special requirements with regard to climate and natural conditions, as well as considerations of an epidemiological nature.

The planned placement of hospital beds according to specialties within a rayon should proceed, in our opinion, from the following theses:

The following should be provided with hospital care in the rayon center: a) all those who require such care and who live in the rayon center and attached districts, in all specialties; b) inhabitants of the entire rayon requiring hospitalization for neurological and infectious disease, ophthalmological, otolaryngological and dermatovenereological care; and c) some of the patients referable to the entire rayon, for general medicine, surgery, obstetrics and gynecology, and pediatrics.

Patients referable to general medicine, surgery, obstetrics and gynecology, and pediatrics will be hospitalized in other rayon and rural district hospitals, with the exception of those who will be hospitalized in the hospitals of the rayon center. As for beds for tuberculosis patients, planning of the network thereof should be pursued on the oblast scale, since they should be placed in large specialized hospitals--sanatoriums. This also applies to certain other categories of patients suffering from oncological, orthopedic, neurosurgical, cardiosurgical, endocrinological, urological, and other pathology.

Hospital care for these groups of patients should be planned on the oblast scale and it should be implemented primarily by hospitals in the oblast center.

Hospital care referable to the so-called broad specialties (general medicine, surgery, pediatrics, obstetrics and gynecology) should be distributed among the central rayon and other rayon and district hospitals. Patients with pathology that requires more complex examination, more complex and qualified surgery, use of special equipment, etc., should be admitted to the central rayon hospital.

Planning Ambulatory Polyclinic Care for the Rural Population

Ambulatory polyclinic care for the rural population is considerably behind the requirements of the rural population and the level of hospital care. This situation is related to the fact that ambulatory polyclinic services require that medical care be closer to the public than hospital care, and for this reason most of the ambulatory visits made by rural patients are referable to the lowest district level, with a high share of feldsher visits.

To some extent, the need to bring ambulatory polyclinic care closer to the rural population is delaying specialization of this type of care. The requirement of medical care specialization is in contradiction to the requirement of accessibility. In small rural populated areas one cannot provide for a complete work load for all specialist physicians. Thus, according to the existing standards for servicing an urban territorial district the following indices prevail: one therapist post per 2,670 population, one pediatrician per 4,000, one obstetrician and gynecologist per 8,000, one surgeon per 8,000, one neuropathologist per 20,000, one phthisiologist per 8,000, one dermatovenereologist per 16,700, one ophthalmologist per 16,700, one otolaryngologist per 20,000 and one stomatologist per 2,826.

Thus, in rural areas, with the same specialized medical care requirements as the urban standards, even in a large populated settlement with a 4,000-5,000 population, one cannot make full use of an obstetrician-gynecologist or surgeon, not to mention narrow specialists, such as the neuropathologist, dermatovenereologist, ophthalmologist and otolaryngologist. One should also bear in mind that specialized medical care is broken down into different elements which, of course, cannot help but lead to considerable decline of the index of polyclinic care of the rural population directly near their residences.

Some authors have suggested standards of ambulatory and polyclinic care requirements of the rural population. These standards are aimed at the near future, and they are based on the actual feasibility of supplying the necessary physicians.

The number of visits per rural resident recommended by different authors in recent years are as follows:

I. I. Rozenfel'd, 1955 .	6-6.5
I. D. Bogatyrev, 1957	5-6
P. I. Kal'yu, Ye. D. Zagorskaya, Ye. A. Loginova, B. M. Matsko, O. N. Stel'makh, 1958 . .	5.5-6.0
V. I. Kant, 1959, to physicians only	. 4.45

The existing difference between ambulatory polyclinic care indices for the urban and rural population will be compensated by the following circumstances: a) broader qualifications of the district therapist who will also render care in allied specialties, in cases that do not require the competence of a qualified specialist, or who will administer treatment under the guidance of a specialist referable to the higher level; and b) broader use of paramedical personnel, primarily to perform preventive work.

Ambulatory polyclinic care of the rural population should be planned on three levels: district hospital, numbered rayon hospital, central rayon hospital and other medical institutions of the rayon center (not counting the feldsher-midwife center).

Because the distribution of polyclinic services among these levels depends on how the population has settled and the size and level of specialization of medical institutions, it is difficult to provide a standard of such distribution, especially with reference to specialties. We can only indicate the general principles involved and we can recommend some examples.

The index of ambulatory polyclinic care on each level depends on the scope and nature of such care rendered and on the specialty of the physicians.

On the first level (walk-in center of a rural district hospital) the following types of ambulatory polyclinic care are rendered:

- a) most of the general medical, pediatric and stomatological care; and
- b) first medical care [by physician] and treatment in the simpler cases referable to other specialties.

On the second level (numbered hospital with polyclinic) care is rendered in all specialties to the inhabitants of the districts that are directly attached to the hospitals, whereas for the so-called narrow specialties, as well as consultations in all specialties, to the inhabitants of the entire rayon serviced.

With the further enlargement of rural district hospitals there will be less difference between the duties of district and rayon (numbered) hospitals.

The central rayon hospital and other institutions in an enlarged rayon center furnish the entire rayon population with consultation assistance in all specialties, and highly qualified care requiring more complex equipment, and they also implement completely ambulatory polyclinic care of the inhabitants of the rayon center and districts serviced by the central rayon hospital. Accordingly, we can outline the following distribution of number of visits to doctors according to levels estimated per resident. As an example: two visits on the district level, four on the rayon level, and one on the oblast level.

One can plan the distribution of specialized ambulatory polyclinic care among different service levels using the same method as for planning the distribution of hospital care according to levels.

Here, the distribution of ambulatory polyclinic care according to levels should correspond in essence to the distribution of hospital care, with some change in the direction of the primary levels.

As we have shown previously, in the 1920's-1930's there was an intensive growth in the number of rural medical districts. After the Great Patriotic War, the network of rural medical districts (some increase was observed in 1950-1955, largely due to deployment of a network of new institutions in areas where virgin and long-fallow lands were subject to reclamation) became stabilized, showing a trend toward a further decrease. There was merely some shifting of hospital and ambulatory type institutions, and of rayon and district hospitals. As a result of such "juggling" the network of district hospitals grew at the expense of both rural district walk-in centers, as well as of rayon hospitals.

One would think that in the near future the existing district system of medical care of the rural population will be retained. For a long time yet, district medical institutions will provide medical care to the residents of a number of villages located within a certain service radius. This system is being augmented by a network of feldsher-midwife centers located in some settlements.

Bearing this in mind, for the next few years measures must be provided to strengthen the rural medical districts.

In the future, the development of ambulatory and polyclinic care of the rural population will be influenced by three main factors: 1) transformation of rural settlements into enlarged populated areas of the urban type; 2) deployment of a network of large central and other rayon hospitals, and enlargement of rural district hospitals which, along with hospital services, will implement ambulatory and polyclinic care of the rayon's inhabitants; and 3) new organizational forms of medical care, with due consideration of the existing forms of medical care for the urban population.

It may be assumed that with enlargement of populated areas and development of large agricultural settlements of the urban type, the mean population size of such a center will constitute about 3,000-5,000 people, and there will be 20,000-25,000 such populated areas instead of the 505,000 reported in the 1959 census (without Latvian and Lithuanian SSR).

In the long-term plan, the placement of rural districts should be directed toward the new relocation of populated centers outlined in the plan. As for the radius, while at the first stage of the long-term plan (approximately for the next 10 years) it would increase somewhat, in the future this criterion will disappear in view of the fact that districts will be located within the boundaries of a single populated center. As we see it, enlargement of rural settlements will lead to a number of consequences:

1) There will be a sharp increase in the accessibility of medical care to the rural population and the standards of ambulatory and polyclinic care will rise. Most of the rural centers will gain the significance of "high-density" settlements.

2) The significance of the district principle, as the main organizational principle of therapeutic and preventive care, will be retained or even increased. However, instead of a number of settlements at considerable distances from one another within the boundaries of a rural medical district, the district will cover all of the inhabitants of one populated center or only part of its inhabitants residing in a specific territory. In rural areas, such a district will be formed similarly to the urban territorial district. The service radius will lose its significance as the main index of accessibility of ambulatory care in a rural medical district.

The requirements as to volume of medical care and number of medical personnel will be determined by the size of the population to be serviced.

3) There will be no need to have independent feldsher and feldsher-midwife centers, since the entire population will be concentrated within one populated center. Perhaps it will be necessary to have feldsher health centers in some agricultural enterprises located at a distance

from the central location of the sovkhos. Feldsher and feldsher-midwife centers as independent institutions will be retained only in remote populated areas that are difficult to reach and that have a small population (the Extreme North, mountain and desert regions). At the same time, there will be a significant increase in the role played by feldshers and midwives to perform prophylactic work in the rayons and to participate in dispensary care of the public.

The objectives in the field of prevention that were put to public health in the CPSU program require comprehensive strengthening of the district system of medical care of the public, further evolution thereof into a new form consistent with new social relations in rural areas, new working and living conditions, and the enormous rise of cultural standards of the people. Questions of total coverage of the people with dispensary supervision, development of health education on a higher level, hygienic work in schools, lowering the incidence of disease and eradicating a number of diseases, and improving working and living conditions cannot be resolved without active preventive work on the part of the team of medical workers in the rural medical district, under the guidance of a qualified physician who comprehends well the preventive direction of Soviet medicine. For this reason, the rural medical district cannot be viewed as some sort of primitive institution whose tasks are limited solely to rendering first aid by a physician. The medical district is a most important element in the entire system of therapeutic and preventive care for the rural population. It is inseparably linked with the entire system of hospital and polyclinic services. The organizational forms and methods of operating a medical walk-in office, its staff structure, the composition and qualification of its medical personnel and its technical equipment will be determined by the experience gained in rural medical districts, growth of the tasks confronting them, and the public health requirements set forth by the rural population during this period of the full-fledged building of communism.

With respect to its quality, organizational forms and methods of working, medical care of the rural population will come increasingly closer to the ways and means of operating urban therapeutic and prophylactic institutions. The material and technical base of medical institutions will increase sharply, in accordance with modern scientific requirements. Provisions with regard to transportation and modern communications will help establish unity, coordination and continuity in the work of all levels of medical care for the rural population.

Even more medical care will be rendered to the rural population by urban therapeutic and prophylactic, as well as sanitary epidemiological, institutions.

All this will lead to the ultimate elimination of the differences between medical care of the urban and rural population and to the creation of a unified system of medical care of the entire population, urban and rural. However, this does not mean that there will be specific aspects to medical and health services for the rural population. The features that ensue from such distinctions of agricultural

labor as, for example, seasonal change of occupations, concentration of planting and harvesting within a short period of time over a large territory will remain. Of course, there will also be significance to the distinctions of settling of the rural population. V. I. Lenin stated that "... there are distinctions to agriculture that it would be absolutely impossible to eliminate...." (7).

However, these distinctions will not be greater than the differences involved in servicing workers in other sectors of industry--mining, petroleum, maritime transport, etc.

FOOTNOTES REFERRED TO IN CHAPTER 6

1. MATERIALY XXII S"YEZDA KPSS, Moscow, p. 366, 1961.
2. Ibid, p. 384.
3. MATERIALY XXIII S"YEZDA KPSS, Moscow, p. 229, 1966.
4. GOSPLAN SSSRP, "Second Five-Year Plan of Development of the USSR National Economy," Moscow, Vol. 1, p. 346, 1934.
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Chapter 7

NOMENCLATURE AND TYPES OF PUBLIC HEALTH INSTITUTIONS. DISPOSITION OF THE NETWORK OF PUBLIC HEALTH INSTITUTIONS IN CITIES. NOMENCLATURE AND STANDARD CATEGORIES OF PUBLIC HEALTH INSTITUTIONS.

With the existing high level of specialization in medical care and technical back-up of public health institutions, medical care can no longer be rendered only by individual physicians (as was the case, for example, during the period of zemstvo medicine), or even by an individual, large and well-equipped medical institution. Medical care can in fact be rendered only by a standard and differentiated system of institutions on the scale of an enlarged rayon, large city and entire oblast.

The system of medical institutions should meet the following specifications:

- 1) Highly qualified medical care and a high technical level of diagnostic tests and therapeutic measures. This requires enlargement of medical institutions, special hospital and polyclinic departments, as well as the creation of large clinical diagnostic laboratories, physiotherapy departments, and other therapeutic and diagnostic hospital departments.
- 2) Specialization of medical care with preservation of its unity and coordination with all specialties. This is achieved by the existence of multispecialty hospitals and polyclinics, and a network of specialized therapeutic and preventive institutions (maternity homes, dispensaries, pediatric, infectious, and tuberculosis hospitals, etc.).
- 3) Providing for continuity in rendering different types of medical care to the public (polyclinic and hospital, hospital and sanatorium, etc.).
- 4) Bringing the main types of polyclinic care (general medical and pediatric) closer to the adult and child population on the basis of the principle of district service.
- 5) Providing rational services to different groups and primarily to industrial workers on the basis of the principle of shop district.
- 6) Proper breakdown [in rayons] of specialized types of medical care.
- 7) Organizational and methodological supervision by the subordinate levels of medical care and creation of the appropriate organizational methodological centers.

8) Complex breakdown [into rayons] of the entire network of medical institutions with due consideration of the distribution of the population and future urbanization plans.

The hospital and polyclinic care standards for the urban population which we have discussed previously determine merely the overall volume of medical care in different specialties. The disposition of beds and physician posts in different institutions, determination of the types of these institutions, and their specialization and size in each city constitute a most important and independent stage of planning.

In the course of development of Soviet public health, modern organizational forms of therapeutic-prophylactic and sanitary-epidemiological services and specific types of medical institutions were brought to life. At the present time, in the USSR, a standard nomenclature and standard categories of public health institutions have been established and approved by order No. 870, 21 November 1949, of the USSR Ministry of Health, with amendments added by order No. 358, 19 July 1962, of the USSR Ministry of Health, and subsequent instructions.

We submit below the existing nomenclature of public health institutions:

I. Therapeutic and prophylactic institutions

a) Hospital institutions

- District hospital
- Rayon hospital
- Central rayon hospital
- Municipal hospital
- Oblast (kray, republic) hospital
- Hospital (for Patriotic War veterans)
- Psychiatric hospital
- Tuberculosis hospital
- Infectious hospital
- Specialized hospital
- Maritime transport hospital

b) Therapeutic and prophylactic institutions of a special type

- Leprosarium

c) Dispensaries

- Tuberculosis dispensary
- Dermatovenereological dispensary
- Oncological dispensary
- Trachoma dispensary
- Neuropsychiatric dispensary
- Medical physical-culture dispensary
- Goiter-control dispensary

- d) Ambulatory polyclinic institutions
 - Polyclinic
 - Walk-in office
 - Stomatological polyclinic
 - Physiotherapy polyclinic
 - Medical health center [operated by physician]
 - Feldsher health center
 - Feldsher-midwife center
 - e) Emergency and blood transfusion institutions
 - Emergency station
 - Blood transfusion station
 - f) Institutions dealing with mother and child care
 - Maternity home
 - Kolkhoz maternity home
 - Creche
 - Child center
 - Mother and child center
 - g) Sanatorium and resort institutions
 - Sanatorium
 - Sanatorium-prophylactorium
 - Resort polyclinic
 - Balneological therapeutic institution
 - Mud-treatment institution
 - Pioneer camp sanatorium, of the Artek type
- II. Sanitary and prophylactic institutions
- a) Sanitary and epidemic-control institutions
 - Sanitary and epidemiological station
 - Plague-control station
 - Plague-control laboratory
 - Isolation and disinfection center
 - b) Institutions for health and education
 - Health education center
- III. Institutions dealing with forensic medical expertise
- Forensic medical expertise office
- IV. Pharmaceutical institutions
- Pharmacy
 - Pharmaceutical stand
 - Pharmacy shop
 - Pharmaceutical warehouse
 - Laboratory for tests and analyses

The specialized hospitals include hospitals for rehabilitation therapy (orthopedic and surgical or psychoneurological), physiotherapy, ophthalmology, otorhinolaryngology, psychoneurology (for individuals suffering from chronic alcoholism).

We add the word "children's" to the therapeutic and preventive institutions that are designed to service only the child population.

Standard [model] categories according to size are established for most institutions. The size index for hospitals and sanatoriums is the number of beds, and for ambulatory polyclinic institutions and dispensaries it is the number of physician posts; for creches and child centers it is the number of accommodations; for sanitary and epidemiological stations the population size serviced; for emergency stations the number of calls serviced per year; for the blood transfusion stations the number of liters of blood, plasma and dry serum; for pharmacies the number of prescriptions and annual turnover in thousands of rubles.

Determination of the nomenclature and standard categories played a large part in organizing public health and it aided in improving the quality of planning. However, being essentially adapted to the existing structure of the network of medical institutions, it does not yet settle the question as to types and categories that are the most advantageous and effective in rendering medical services to the public under specific conditions. Nor does it answer the question of the optimum structure of multispecialty hospitals and polyclinics.

The lower categories of hospitals and polyclinics established by order No. 358 are larger than many of the hospitals and polyclinics in the existing network. These small and ineffective institutions should be brought up in size to the indices of the corresponding categories of institutions, or else they should be linked with institutions located close to them as departments. Some work has already been done in this direction; however, there is still much more to do.

In the future, in connection with enlargement of hospitals, on the basis of order No. 395, 31 July 1963, hospitals and other medical institutions that are smaller than the established capacity must be eliminated, and there should be a substantial redistribution of hospitals in categories.

Thus, according to order No. 395, it was planned to construct only large hospitals with at least 400 beds in cities, and the existing hospitals will be enlarged accordingly. This size corresponds to category IV of municipal hospitals, on a scale of eight categories. The minimum size of republic-level hospitals was established at 600 beds.

In the future, because of the significant increase in capital investments for hospital and construction and the possibility of using cooperative funds from different sources for such construction, some positions were adopted with respect to the construction of even larger hospitals in order to broaden specialized medical care and increase the quality thereof. In an article by V. V. Golovtseyev (SOVETSKOYE ZDRAVOOKHRANENIYE, No. 6, 1966), head of the planning and financing administration of the USSR Ministry of Health, it is recommended that

Standard Categories of Therapeutic and Prophylactic Institutions

Name of Institution	Categories							
	I	II	III	IV	V	VI	VII	VIII
District hospital (beds)	75-100	50-75	35-50	25-35	---	---	---	---
Rayon hospital (beds)	350-400	300-350	250-300	200-250	150-200	100-150	---	---
Municipal hosp. (beds)	800-1000	600-800	400-600	300-400	250-300	200-250	150-200	100-150
Children's hosp. (beds)	300-400	250-300	200-250	150-200	100-150	75-100	50-75	---
Psychiatric hosp. (beds)	800-1000	600-800	500-600	400-500	300-400	250-300	200-250	---
Oblast, kray, republic hospital (beds)	800-1000	600-800	500-600	400-500	300-400	---	---	---
Tuberculosis hospital (beds)	300-400	250-300	200-250	150-200	100-150	---	---	---
Infectious hospital (beds)	300-400	250-300	200-250	150-200	100-150	---	---	---
Tuberculosis dispensary (physician posts [PP])	20	15	10	7	5	3	---	---
Dermatovenereological dispensary (PP)	20	15	10	7	5	3	---	---
Oncological disp. (PP)	15	10	7	5	---	---	---	---
Neuropsychiatric dispensary (PP)	15	10	7	5	3	---	---	---
Physical culture dispensary (PP)	10	7	5	3	---	---	---	---

(Continued)

Name of institution	Categories							
	I	II	III	IV	V	VI	VII	VIII
Walk-in office (PP)	5	3-4	1-2	---	---	---	---	---
Polyclinic (PP)	80-100	60-80	40-60	30-40	---	---	---	---
Children's polyclinic (PP)	50-70	40-50	30-40	20-30	15-20	---	---	---
Stomatological polyclinic (PP)	30-40	25-30	20-25	15-20	10-15	---	---	---
Medical health center (PP)	4	2	1	---	---	---	---	---
Emergency station (calls per year, thousands)	75-100	50-75	25-50	10-25	5-10	---	---	---
Maternity home (beds)	150-200	100-150	80-100	60-80	---	---	---	---
Creche (beds)	100-120	80-100	60-80	45-60	30-45	---	---	---
Sanatorium (beds)	300-400	200-300	150-200	100-150	---	---	---	---

the allocated funds be used cooperatively in order to implement construction of hospitals with at least 250-400 beds in rayon centers and with 600 or more beds in large cities; whereas in oblast, kray and republic centers they should have at least 1,000 beds. In view of the construction of large central rayon hospitals, as well as children's and tuberculosis and other specialized hospitals, there will be a considerable increase in share of the higher categories as well, with reference to these types of hospitals.

The established nomenclature retains the unification of hospitals and polyclinics. Unlike order No. 870, dated 21 November 1949, in which polyclinics and walk-in offices were completely excluded as an independent institution, order No. 358 allows them to exist; however, with significant restrictions. The creation of polyclinics as independent institutions is allowed only in some cases, with the permission of the minister of health of the Union republic. The classification of unified hospitals in a given category is determined exclusively by the number of beds, and this creates some difficulties with respect to planning the disposition of the network of ambulatory polyclinic institutions. Conversely, the dispensary categories are determined solely by the number of physician posts, without consideration of number of beds, although it is indicated that all dispensaries include a hospital facility. For this reason, when solving the problem of disposition of the network of institutions, we cannot be content merely with determination of the category of a hospital, polyclinic or dispensary; rather, we should submit to specific analysis the scope of polyclinic and hospital activities of the institutions, and their structure with respect to specialties. This makes it necessary to use some methodological procedures which we shall now discuss.

Disposition of the Network of Therapeutic and Prophylactic Institutions in Cities

The question of disposition of the bed resources in polyclinic institutions is solved differently when dealing with a plan for the construction of a new city or reconstruction and respecialization of the existing network, and new construction in existing cities. When solving this problem, one must tie the current plans dealing with reconstruction and expansion of the network of medical institutions in with the long-term plan of development of the entire public health network which, in turn, should be an organic component of the general plan of reconstruction and development of the city as a whole, distribution of inhabitants in it, construction of new residential areas and industrial enterprises, etc. For this reason, in each instance a concrete solution must be provided that reflects the distinctions of a given city, with due consideration of the already-existing structure of the public health network. A standard concept of disposition can characterize only the general trends and patterns in development of the network, some general correlations of which may be reflected in different variants in practice.

Let us try to describe a model plan of disposition of therapeutic and prophylactic institutions in cities with populations of 50,000,

100,000 and 200,000. According to the existing standards of providing the urban population with hospital and ambulatory polyclinic care (without therapeutic diagnostic and ancillary types of care), these cities should have the following numbers of beds and physician posts to provide ambulatory polyclinic services in the main specialties (Table 23).

On the basis of the above-indicated nomenclature of public health institutions and categories thereof, one should determine the types of institutions that are optimum in size and structure, and their most rational disposition in a city, the most rational combination of multispecialty hospitals and polyclinics and a network of specialized hospitals, maternity homes and dispensaries, and one should make the best decision as to the forms of combining hospitals and polyclinics.

We shall begin our discussion with a city with a population of 50,000. The requirement of 60 pediatric beds and 12.5 physician posts to render medical services to the child population is sufficient grounds for organizing an independent category VII children's hospital in the city, with a children's polyclinic. One could also organize a maternity home with a gynecological department, category III, with 100 beds and gynecological consultation office. The second variant, depending on local conditions, could be to organize a children's, maternity and gynecological department within the multispecialty municipal hospital.

There are also two variants to the solution of the problem of therapeutic and preventive care for tuberculosis patients. With the requirement of 60 beds for hospital care and 6 phthisiologist posts for ambulatory polyclinic care, one could organize a II-III category tuberculosis dispensary. If, however, the plan for oblast development of the network includes a tuberculosis hospital that could also meet the requirements of the city with respect to the hospital care of tuberculosis patients, it is best not to organize an independent dispensary, but rather to have a dispensary tuberculosis department as part of the polyclinic at the unified hospital.

Since, according to the standard, only 20 beds are required for the hospital care of patients with dermatovenereological disease (essentially with skin disease), there is no reason to organize an independent dermatovenereological dispensary; this type of care can be provided in the appropriate department of the unified municipal hospital. In view of the fact that the minimum size of an independent infectious hospital has been established at 100 beds for category V, and that only 70 beds are required for the hospitalization of infectious patients, we should limit ourselves to organizing an infectious department at the municipal hospital.

If we assume that pediatric, obstetric and gynecological, and phthisiological care will be rendered in specialized hospitals and dispensaries, we shall need a hospital with 340 beds and a polyclinic with 54 physician posts for hospital and polyclinic care in general medicine, surgery, neuropathology, dermatovenereology, ophthalmology, otolaryngology and infectious disease.

Table 23

NUMBER OF BEDS AND PHYSICIAN POSTS REFERABLE TO AMBULATORY POLYCLINIC CARE, ACCORDING TO EXISTING STANDARDS, IN CITIES WITH DIFFERENT POPULATION (NOT COUNTING SERVICES TO THE RURAL POPULATION)

Specialty	50,000 population		100,000 population		200,000 population	
	Number of beds	Physician posts for polyclinic care	Number of beds	Physician posts for polyclinic care	Number of beds	Physician posts for polyclinic care
General medicine	110	18.75	220	37.5	440	75
Pediatrics	60	12.5	120	25	240	50
Obstetrics	60)	6.25	120	--	240	
Gynecology	40)		80	12.5	160	25
Surgery	95	6.25	190	12.5	380	25
Neuropathology	15	2.5	30	5	60	10
Phthisiology	60	6.25	120	12.5	240	25
Dermatovenereology	20	3	40	6	80	12
Ophthalmology	17.5	3	35	6	70	12
Otolaryngology	12.5	3	25	6	50	12
Infectious disease	70		140	--	280	
Stomatology	--	17.5	--	35	--	70
Totals	560	79.0	1,120	158.0	2,240	316

Our considerations will proceed in about the same direction with reference to a city with 100,000 population. The children's hospital would be category V with 120 beds. Here, there is no question as to the need of an independent maternity home. Depending on the distribution of the population, there may be two category III maternity homes with 100 beds in each, or one category I maternity home with 200 beds.

There is every justification for organizing an independent tuberculosis dispensary with a 120-bed hospital, a dermatovenereological dispensary, as well as an infectious hospital, category V, with 140 beds. The disposition of 500 hospital beds referable to general medicine, surgery, neuropathology, ophthalmology and otolaryngology should be in a single multispecialty hospital, category III, with 500 beds, or two category V-VI hospitals. In the second variant, one must take into consideration the fact that it would be desirable to have beds for general medicine and surgery in each of these two hospitals, whereas it would be inexpedient to divide the beds referable to the three narrow specialties among the two hospitals.

In a city with a population of 200,000, we can recommend the following system of disposition of hospital institutions.

A total of 240 pediatric beds are deployed in a category III children's somatic hospital. The 240 maternity and 160 gynecological beds are placed in two maternity homes of category I, of equal or different size, depending on the distribution of the population. If there are separate and distinct rayons, an independent maternity home of a lower category could be organized in them. The 240 beds for tuberculosis patients are placed essentially in the tuberculosis hospital; some of the beds may be in the municipal tuberculosis dispensary. The total of 80 beds for patients with dermatovenereological disease are placed in the hospital of the municipal dermatovenereological dispensary; 280 infectious beds are located in the category II municipal infectious hospital.

It would be purposeful to distribute the bed resources referable to all other specialties in two hospitals, one referable to category III with 600 beds and the other--category IV with 400 beds, with the following distribution according to specialties, as an example (Table 23a).

Table 23a

	I	II
General medicine	280	160
Surgery	160	140
Urology	30	--
Traumatology and orthopedics	--	50
Neuropathology	60	--
Ophthalmology	70	--
Otolaryngology	--	50
Totals	600	400

Within the range of this number of surgical beds one can single out an independent traumatological and urological department, whereas specialized hospital care referable to oncology, neurosurgery and stomatology for the inhabitants of the city would be rendered in the oblast hospital which, most probably, should be located in the same city, since with few exceptions, all cities with a population of 200,000 or more are oblast or republic centers.

Of course, in practice, there may be a different disposition of hospitals according to size and number of beds for different specialties. One should take into consideration the already existing structure of medical institutions, the presence of hospital buildings, and distribution of inhabitants in the city. One cannot fail to take into consideration the circumstance that, at the present time, a significant part of the bed resources of municipal hospitals is located in facilities with less than 300-400 beds each. The necessity of a smaller hospital may be due to the presence of an industrial enterprise, whose blue and white collar workers are serviced by this hospital, or its location in a separate part of the city, or a settlement included within the city lines, etc. One should take into consideration the indication given in order No. 395 to the effect that enlargement of hospitals may also be achieved by unifying small hospitals in cities, designating them as departments of large multi-specialty hospitals, with concurrent revision of the classification of the entire bed resources.

Certain adjustments must be made to our estimates in view of the fact that part of the hospital bed resource in cities is used by rural residents. More than 60% of rural residents receiving hospital care in cities are presently admitted to oblast hospitals and to the hospitals of cities under rayon jurisdiction, including central rayon hospitals. Estimation of hospital bed requirements referable to such hospitals to take care of the rural population needs was submitted in Chapter 6. With the construction of large oblast and large central rayon hospitals, they will constitute an even larger share with regard to hospital care of the rural population. If we deduct these hospitals, the percentage of rural residents admitted to municipal hospitals constitutes a mean of about 12% of all patients in such hospitals.

The percentage varies significantly, depending on local conditions, and it is not the same for different specialties. For this reason, when estimating the necessary number of beds and disposition thereof, one should proceed from the existing practice in each city, with due consideration of the planned development of the hospital network to provide hospital care for the rural area that gravitates toward a given city.

As we see, the question of disposition of the ambulatory and polyclinic network in a city with a population of 50,000 is relatively easy to solve, with different variants of disposition of hospitals. However, in a city with a population of 100,000 or more, we already encounter some difficulties. They arise because, in planning ambulatory polyclinic services, one must meet several requirements that are not always compatible. These requirements consist of the following:

1) implementation of the unification principle, which requires consistency between hospital and polyclinic both with regard to size and composition of special departments and offices; 2) accessibility of polyclinic care to the public, so that one cannot exceed a certain population size and a certain service radius. This requirement becomes particularly important in view of the transition to universal coverage with dispensary care, when the polyclinic will not be limited to ambulatory therapeutic care but will be actively involved in improving the health of the public by means of dispensary methods; and 3) providing for a complex [composite] nature of polyclinics as multi-specialty institutions. This means that there should be as many medical specialties as possible represented at the polyclinic.

Order No. 321, 20 July 1960, issued by the USSR Ministry of Health established the model organizational structure of polyclinics (Table 24).

Infectious disease offices are organized within the general medical departments of polyclinics. Depending on the polyclinic size, there may be cardiorheumatology offices, offices to care for adolescents, and endocrinological offices within the general medical departments; the surgical departments may include offices for traumatology, oncology and urology; the tuberculosis departments could include offices on tuberculosis of the bones, otolaryngology, stomatology, roentgenodiagnostics; the stomatological department could include offices for therapeutic stomatology, surgical stomatology, orthodontics and a dental prosthetic laboratory.

As can be seen in Table 24, this organizational structure is designed with due consideration of the fact that the polyclinic is a complex institution that renders ambulatory polyclinic care in all specialties. If care referable to pediatrics, obstetrics and gynecology, phthisiology and dermatovenereology will be rendered in the city in specialized institutions (children's polyclinic, women's consultation center, tuberculosis and dermatovenereological dispensary), the number of physician offices [or office hours] will diminish from 75.8 to 48.8 in group I polyclinics, from 56.6 to 37.3 in group II, from 38 to 24.5 in group III, from 31.1 to 20 in group IV, and from 19 to 12.5 in group V. Accordingly, there will be a decrease in the number of visits to doctors.

The distribution in categories, as related to number of physician posts later established by order No. 358, coincides in essence with the distribution in groups as indicated above. However, instead of five size groups, as was the case in accordance with order No. 321, at the present time four categories have been established. The reduction in number of categories was made because of the larger polyclinics with over 100 physician posts. Herein lies the tendency to nounteract construction of very large polyclinics with a large service radius and a large number of people serviced.

A comparison of the established categories of hospitals and polyclinics leads to the conclusion that they imply the possibility, in some cases, of inconsistency between hospital and polyclinic with respect to size, structure, and number of people serviced. The

Table 24

MODEL ORGANIZATION OF POLYCLINIC STRUCTURE

Indices	I	II	III	IV	V
	Group	Group	Group	Group	Group
Population serviced	48,000- 50,000	36,000- 47,000	24,000- 35,000	18,000- 23,000	12,000- 17,000
Number of territorial districts	12	9	6	5	3
Visits per day	1,600	1,200	800	600	400
Total number of physician posts	over 100	over 80	over 60	over 40	over 30
Capability of unified hospital (beds)	480	360	240	180	120
Structure (number of patients seen by physicians)					
General medical department	18.0	13.5	9.0	7.5	4.5
Children's department	12.0	9.0	6.0	5.0	3.0
Obstetrical-gynecological dept.	6.0	4.5	3.0	2.5	1.0
Surgical department	6.0	4.5	3.0	2.3	1.5
Tuberculosis department	6.0	4.5	3.0	2.3	1.5
Stomatological department	17.0	12.5	8.5	7.0	4.5
Dermatovenereological office	3.0	2.25	1.5	1.25	1.0
Ophthalmological office	3.0	2.25	1.5	1.25	1.0
Neurological (psychiatric) office	2.4	1.8	1.25	1.0	0.5
ENT office	2.4	1.8	1.25	1.0	0.5

largest category I polyclinic is designed to service a 50,000 urban population, which constitutes 12 therapeutic districts; and in the case of unification, it corresponds to a 480-bed hospital with departments for all specialties. Yet, order No. 395 provides for future construction in cities of only large hospitals, with 400, 600, 800 and 1,000 beds, as well as enlargement and reorganization [with respect to specialties] of existing municipal hospitals. A 500-bed hospital can service 100,000 people (according to the second variant), a 600-bed hospital can service 120,000 people, an 800-bed hospital 160,000, and a 1,000-bed hospital 200,000, urban population. Two or three large polyclinics would correspond to one such hospital. As a result of enlarging hospital departments, there will be a variable number of people serviced by different hospital departments. For example, in the above-mentioned theoretical distribution of 600- and 400-bed hospitals according to specialties, in a city with a 200,000 population, the number of patients serviced in each hospital department will be as shown in Table 24a (in thousands of people).

Table 24a

Hospital department	I	II
General medicine	130	70
Surgery	55	45
Urology	200	
Traumatology	--	200
Neurology	200	--
Ophthalmology	200	--
Otolaryngology	--	200

Thus, in the two hospitals, the general medical and surgical departments service a different number of patients; all other departments, as well as specialized institutions--children's and infectious hospital, dispensaries--service the entire city (with the exception of the maternity home and gynecological consultation office).

For a hospital, such fluctuations in the number of people serviced in different departments are not of substantial significance; the inconveniences that arise are totally compensated for by the higher level of qualifications and specialization of medical care because of enlargement of the departments. This also applies, to a large extent, to polyclinic care. An enlarged specialized polyclinic department, unified with the corresponding hospital department, provides for a better quality of medical care, increased qualification of personnel, better and more effective use of special equipment. However, the polyclinic is also a therapeutic and preventive institution that is closest to the

public. For the polyclinics, of great importance is the requirement of accessibility, a specific service radius that should not exceed 1-2 km. For example, in Moscow there are more than 150 rayon polyclinics, and polyclinics at industrial enterprises (not counting departmental and stomatological ones). The area serviced by a polyclinic averages 5 square km, the service range is 1.4 km, whereas the population serviced constitutes 40,000-50,000 people, and this estimate does not rule out groups that are serviced by departmental polyclinics. Experience shows that a polyclinic designed to service 40,000-60,000 people offers the best combination of the principle of accessibility and territorial division of polyclinic care, with the requirement of qualified medical care. One cannot demand that there be total consistency between the size of the polyclinic and the size of the hospital to which it is attached. If a large hospital with 600, 800 or more beds is unified with a polyclinic with the same capability, it would result in the creation of extremely cumbersome institutions difficult to administer from the standpoint of both medical and business management, in which the polyclinic with its specific and extremely important tasks would be shifted to a secondary place.

From this it follows that when deploying a network of polyclinic institutions, particularly in the large cities, in some cases it will be necessary to create, along with polyclinics that are unified with hospitals, some independent polyclinics with their own service area--particularly in newly built up areas where there is no need to build new hospitals (as well as at large industrial enterprises). At the same time, in multispecialty polyclinics that are unified with hospitals, there may be departments and offices without the corresponding departments in the hospital.

Where it is not feasible to systematically implement the unification system, the link between the polyclinic and hospital services should be retained through other organizational forms. In the course of development of Soviet public health, the objective of providing for communications between the hospital and polyclinic was voiced long before they were unified. Where there are no prerequisites for administrative unification of a polyclinic and hospital, or of combining the corresponding departments, there should be a functional link to implement continuity of patient work-up and treatment, consultations for polyclinic patients at the hospital, as well as advancement of the qualifications of polyclinic physicians.

To summarize, we can formulate the following theses that should serve as the basis for the disposition of institutions that provide ambulatory polyclinic care:

- 1) Ambulatory polyclinic care for the urban population should be based on the rayon principle of service. The polyclinic service rayon should cover a population of no more than 50,000-60,000 people (12-15 therapeutic districts) with a maximum service radius of 1.5-2 km.
- 2) The polyclinic should be designed as a complex multispecialty institution that renders ambulatory polyclinic care in all specialties,

including general medicine, surgery, neuropathology, ophthalmology, otolaryngology, stomatology, and it should be equipped with a complete set of therapeutic and diagnostic offices and departments. In the presence of large hospital departments of the appropriate specialty in multispecialty hospitals, or in the form of independent specialized hospitals, it is desirable to organize dispensary departments in the polyclinic for phthisiology, dermatology, as well as gynecological consultations.

3) In large cities, polyclinic departments and offices referable to such narrow specialties as urology, orthopedics, and endocrinology, as well as cardiorheumatological offices should be organized in 1-2 polyclinics combined with hospitals, where there are the corresponding hospital departments. These specialized departments and offices should become methodological centers to render polyclinic care in the corresponding specialty for the entire network of municipal polyclinics.

4) The unification of hospitals and polyclinics is the best and most effective form of providing therapeutic and preventive services to the public. It is particularly important to systematically implement the unification principle with respect to the general medical and pediatric service, which would provide for a proper role to be played by the hospital in organizing and improving the quality of territorial district services. However, in some cases, particularly in large cities that have large hospitals, one must allow for the existence of independent polyclinics, particularly in areas where new construction is in progress, where there is no justification for the construction of hospitals, and in large industrial enterprises. One should also permit the organization of nonunified departments referable to specialties for which there are no departments in the hospitals, at polyclinics that are unified with such hospitals.

When planning the disposition of the network of therapeutic and prophylactic institutions, one should provide predominantly for the care of industrial workers. In most cases, this principle is implemented without organizing any special institutions for this purpose in the network of municipal hospitals and polyclinics, by means of organizing shop district services for industrial workers and other organizational measures. If there are large industrial enterprises that are related to housing blocks, it may become necessary to open special therapeutic and prophylactic institutions designed for the exclusive or predominant care of workers in these enterprises and their families. This could involve opening or closing medical and health centers or polyclinics at the industrial enterprises. In other cases, special hospital departments or polyclinic departments in hospitals may be organized for the predominant care of industrial workers in large municipal hospitals.

From all of the foregoing, we see how complex and diverse are the factors that determine the most rational disposition of the network of public health institutions in cities, particularly a large city, and even more so in an oblast center.

In this chapter we have been able to describe only the main directions that should serve as the basis for the disposition of a network of medical institutions in cities.

Chapter 8

STAFF STANDARDS FOR MEDICAL INSTITUTIONS AND THEIR ROLE IN PUBLIC HEALTH PLANNING

Essay on Development of Standard-Setting With Reference to Medical Institution Staff

To calculate the medical personnel requirements for each public health institution, a standard method is used at the present time: the system of staff standards. Such a unified system of estimation is due to the fact that Soviet public health is comprised of a considerable number of diverse therapeutic and prophylactic and other types of institutions that provide medical care, the prevention of disease and the supervision of the health status of the public.

The large number of institutions that are closely interrelated makes it necessary to have a standard method of planning their activities and supplying them with personnel. The system of staff standards occupies one of the leading places in solving such problems.

Determining the size of the staff of medical institutions is one of the earliest forms of setting medical care standards. Evidently, it began first of all in the area of military medicine. In this regard, it is interesting to note that, as far back as 1716, Peter I introduced a military statute which defined the "number of doctors, surgeons and pharmacists for army needs once and for all" (1).

In 1735, a document was approved on the basis of which the size of staff in all hospitals, existing and newly founded in the Russian State was computed. This document was named the "General Regulations Dealing with Hospitals and Assigned Posts for Doctors and Other Medical Personnel, Commissars, Clerks, Craftsmen, Workers and Other Relevant Personnel" (2).

To service the inhabitants of uezd cities and the inhabitants of the uezd as a whole, tsarist legislation (order dealing with public care) provided for the following:

- | | |
|---------------------|------------------------------|
| 1 -- Uezd physician | 2 -- Medical assistants |
| 1 -- Doctor | 2 -- Medical apprentices (3) |

Subsequently the post of doctor [lekar'] was replaced by the post of midwife.

Zemstvo and municipal local governments, which were organized after serfdom was banned, could not develop a standard method of estimating the medical personnel requirements for institutions involved in medical care of the public due to decentralization of the entire medical

sector and because it was impossible under the prevailing conditions to set standards pertaining to work performed by the zemstvo district physician.

It was only after the victory of the Great October Socialist Revolution that--in the place of a lack of coordination between departments, the scattering of manpower and resources, and lack of coordination between the actions of different bodies involved in administering public health--a unified body was created that performed its work in accordance with a single plan with maximum conservation of labor and resources (i.e., the Narkomzdrav). It then became possible to set standards on a centralized basis for medical personnel requirements.

In 1923, the first statute "On Standards of Labor and Staff in Therapeutic and Health Institutions" was approved by the Board of the RSFSR Narkomzdrav and the central committee of the Medical and Sanitary Workers' Trade Union. The method of estimating the medical personnel requirements was based, as stated in the title of the document, on the "Labor Standards" or, as it is written in contemporary records, on "Work Load Standards," with due consideration of the scope of activities of an institution dealing with extramural care, and the size of a hospital. This document established the standard staff for therapeutic institutions in the rural district network.

The growth in the number of institutions in the public health system and the specific conditions under which they operated made it less and less possible to perform a direct count of the staff size of each institution (on the basis of the work load standards and actual volume of activities). In addition, the laborious process of the making of a direct and complete count militated against the long-term planning of public health development. All this made necessary the development of a standard method of determining medical personnel requirements.

In 1940, by order No. 273 issued by the USSR Narkomzdrav, a "standard nomenclature of public health institutions and posts in them" was made effective for the first time. Along with a nomenclature, it established standard categories of public health institutions. On the basis of a standard nomenclature of institutions, their type categories, a standard nomenclature of positions and work load norms for the personnel, the labor legislation of the USSR Narkomzdrav developed and made effective, starting in 1941, the standard [model] staff as the only method of defining medical personnel staff size.

With the unification of hospitals and polyclinics, a consolidated index was added to the method of determining staff standards; it included both ambulatory and hospital care. The hospital bed was taken as such an index.

The practical use of staff standards based on this consolidated index revealed that setting the staff size with reference to medical personnel in the presence of a large number of people serviced and small bed capacity, and vice versa, did not correspond to the actual needs.

For this reason, in 1955, new staff standards were adopted which were based on a method of computing separately the staff size of a unified therapeutic and preventive institution. The personnel for ambulatory polyclinic care was computed for a medical district, whereas the personnel for the hospital sector of work was estimated according to the number of beds at the hospital.

Until recently, a number of therapeutic and prophylactic institutions (dispensaries, rural therapeutic and prophylactic institutions, etc.) were operated in accordance with the standard staff, but the principle of setting this staff made it difficult to implement measures to improve the medical care of the public.

The objectives set forth by the Party and government concerning complete satisfaction of medical care requirements make it necessary to further improve the system of staff standards for public health institutions and to substantiate it scientifically. One should proceed from Lenin's instructions that "one should not start from scratch, one should not revise in one direction and the other; rather, one should be able to make maximum use of what is already created. There should be as few as possible general transformations, and one should make as much use as possible of the administrative, tried and tested results, measures, procedures, methods, and instructions to reach our main goal" (4).

The staff standards are now developed on the basis of the following: 1) nomenclature of public health institutions and their distribution according to type categories, their internal and organizational structure (statutes concerning the institution); 2) the tasks that are put before public health institutions; 3) the nomenclature of posts, the statutes pertaining to officials; 4) legislation dealing with the labor of medical personnel and enumeration; and 5) indices of public requirements with reference to different types of medical care.

Determination of staff standards consists of three main parts: a) determining the numerical expression of standard indices--medical care requirements, work day schedule, number of work days per year, how work time is spent (work load norms); b) the turn from standard indices to estimates of staff posts; and c) setting staff standards and formulating them as a document on the basis of which determination is made of the medical personnel staff size in a specific medical institution.

Method of Determining Norm Indices

The first and most laborious part of the work dealing with staff standards is to define the norm indices. The most important norm index for which we must have a numerical expression is the medical care requirements of the public. The method of determining public requirements and the numerical expression of some indices thereof have been discussed in the relevant chapters.

Table 24b

Specialty	Work hours per day	Breakdown:		
		Polyclinic visitors	House calls	Other types of work (health education, off-hour duty, etc.)
General medicine	6,5	3	3	0,5
Pediatrics	6,5	2,5	3	1,0
Obstetrics and gynecology	6,5	4,5	0,5	1,5
Surgery	6,5	4,5	0,5	1,5
Neuropathology	5,5	5	--	0,5
Phthisiology	5,5	4	--	1,5
Dermatovenereology	5,5	4,5	--	1
Ophthalmology	5,5	5	--	0,5
Otorhinolaryngology	5,5	5	--	0,5
Stomatology	5,5	5		0,5

Determination of the work day schedule of medical workers plays an equally important part in working out staff standards. In most cases, the work day is 6.5 hours long. In those cases where some occupational hazards are involved, labor legislation provides for a shorter work day.

Let us consider, on the example of some specialists, how the work day is organized, depending on the duties that are performed. In the therapeutic and prophylactic institutions of the USSR, services to the public are based on the district principle. Ambulatory polyclinic care is rendered to a patient by the same physicians at the polyclinic and at home. In rural therapeutic and prophylactic institutions, in most cases the principle of patient care by the same physician in the polyclinic, at home and in the hospital, is followed.

In some cases, the district therapist [general practitioner] divides his work day as follows: 4 hours for office visits and 2 hours for house calls. The remaining 30 minutes are spent on various

other types of work (health education, conferences, etc.). In other cases, he spends 3 hours seeing patients in the office and 3 hours on house calls, with 30 minutes left for other types of work.

The district pediatrician schedules his work day somewhat differently: 2.5 hours in the office, 3 hours for house calls, and 1 hour for other types of work.

The fact that diverse conditions are involved in operating therapeutic and preventive institutions, that public requirements vary in the service region with regard to ambulatory care and care in the home, also determine differences in the work schedule of physicians in each individual therapeutic and prophylactic institution. But, in spite of the different conditions for public health institutions, there are some patterns to scheduling the work time of medical personnel in the course of a day. These patterns enable us to find some mean values and to proceed from them in setting staff standards.

In the existing staff standards for ambulatory polyclinic care of the urban population, the following work schedule was established for different specialties (5) (Table 24b).

The above work schedule is merely a guideline and it can be altered in each instance. If there are few house calls and the therapist's scheduled time is not used as stipulated, whereas polyclinic office hours are long and require additional time, one must reduce the time reserved for house calls and increase the time for polyclinic visits.

The number of days a physician works per year is determined by deducting from the calendar year all days off that are provided by labor legislation. There are 52 weekly days off and 8 holidays in a calendar year. Each year, each employee is given a leave of 12 work days, and for some categories of medical workers additional leave varying in duration is provided.

It would take too much time to list all of the professions employed in the public health system that are entitled to additional leave and the duration of such leave. In 1963, a reference book, was published pertaining to the duration of the work day and leaves for public health workers (6).

The number of annual work days for physicians in different specialties working in a polyclinic is as follows:

- 281 -- General medicine
- 281 -- Pediatrics
- 287 -- Obstetrics and gynecology
- 287 -- Surgery
- 287 -- Ophthalmology
- 287 -- Otorhinolaryngology
- 287 -- Dermatovenereology
- 287 -- Neuropathology
- 275 -- Phthisiology
- 287 -- Stomatology

The difference in number of days worked in the year for different specialties is due to the fact that for the district therapist and pediatrician the additional leave equals 12 work days, for other specialists it constitutes 6 work days, whereas the additional leave constitutes 18 work days for phthisiologists. When setting staff standards, the numerical expression of the index--planned duration of the work year--must be established with consideration not only of days off but also of other loss of work days in the course of the year (related to illness, pregnancy and parturition, work in commissions, assignments to undergo advanced training, etc.). The works of a number of authors (I. D. Bogatyrev, A. P. Zhuk, F. M. Ilupina, V. D. Dubrovina, V. K. Ovcharov, and others) revealed that such losses constitute 15 to 30% of the number of work days in a year. Absenteeism related to prolonged temporary disability and leaves due to pregnancy and parturition should not be excluded from the planned work year because an employee who is on the sick list or on leave due to pregnancy and parturition does not spend the wage fund. The administrator of the institution may ask someone else to take his place and thereby assure fulfillment of the planned volume of work. All other work days lost are paid for at the expense of the institution's budget, so that they should be excluded from the planned work year, since in this case the administration cannot remunerate a new employee and assure performance of the work that was planned.

In order to estimate the volume of work that a specific employee can perform, we must know the norm with respect to the time spent on performing a specific work process. In public health, this time norm has several names: work load norm, production norm, work norm, etc., depending on the category and specialty of the personnel. Setting labor standards is a complex and laborious matter. The difficulty of the process of setting standards is due to the specific distinctions of medical personnel activities in public health institutions. We refer those who wish to become better acquainted with the method of setting standards for medical personnel labor to the works of B. M. Matsko, M. A. Rogovyy and other authors.

At the present time, the following estimated work load norms are in effect for medical personnel (physicians) in ambulatory polyclinic institutions (7) (Table 25).

The following work load standards are in force for roentgenologists:

1. Thirty-seven roentgen units per work day in hospitals of therapeutic and prophylactic institutions; 42 roentgen units per work day in ambulatory polyclinic institutions (departments).

2. The daily work load norm for physicians involved in x-ray therapy is established as follows: 25 sessions of roentgen therapy involving static fields and short-distance roentgen therapy; 10 sessions of x-ray therapy involving the use of portable equipment; 25 patients when treating only 1 field with doses of less than 200 rads.

Table 25

ESTIMATED WORK LOAD NORMS FOR PHYSICIANS IN
URBAN AMBULATORY POLYCLINIC INSTITUTIONS (PER WORK HOUR)

Specialty	Polyclinic visitors	House calls
General medicine (infectious disease, endocrinology, hematology)	5	2
Surgery	9	1.25
Traumatology and orthopedics	7	1.25
Urology	5	1.25
Oncology	5	1.25
Pediatrics	5	1.5
Obstetrics and gynecology	5	1.25
Ophthalmology	8	1.25
Otolaryngology	8	1.25
Dermatovenereology	8	1.25
Phthisiology	5	1.25
Neuropathology	5	1.25
Psychiatry	4	1.25
Stomatology, surgical	5	--
" " therapeutic	3	--
" " prosthetic	2	--
Orthodontics	2	--
Forensic medicine (expertise)	4	--
Forensic psychiatry	2	--
Logopedics	1.5	--
Psychiatry (child)	2.5	--

Note: 1 hour is reserved for some specialists for consultations at the patient's home.

3. The work loads per shift of teams who service portable fluorography units are established at 45,000 examinations per year in urban areas and 30,000 in rural areas. When operating permanent units under urban conditions, the work load standard is set at 40,000 examinations per year (8).

These work load standards for roentgenologists are minimal, and they serve as the basis for setting staff standards for public health institutions, but the norms cannot serve as the basis to determine the staff size in specific therapeutic and prophylactic institutions, with the exception of the cases stipulated in the staff standards approved by the USSR Ministry of Health.

The work load standards for laboratory technicians, regardless of level of education, were established at 36 laboratory units in first and second category laboratories and 30 laboratory units in third and fourth category laboratories per 6.5-hour work day. The head of the laboratory (department) staffed by 3-5 laboratory

technicians has a work load that is 50% of that of a physician-laboratory technician, and with a staff of 6-9 people, his work load constitutes one-third of the usual work load of a physician-laboratory technician (8).

In hospitals of municipal therapeutic and prophylactic institutions, the following work load norms are presently in effect per resident position:

25 beds	-- general practitioner (therapeutist)
20 beds	-- pediatrician
15 beds	-- neurosurgeon
20 beds	-- urologist
15 beds	-- obstetrician-gynecologist
25 beds	-- gynecologist
20-30 beds	-- phthisiologist
25 beds	-- oncologist
20 beds	-- neuropathologist
25 beds	-- ophthalmologist
25 beds	-- otorhinolaryngologist
30 beds	-- dermatovenereologist
15-25 beds	-- infectious disease specialist
25 beds	-- stomatologist

Method of Estimating the Number of Staff Positions

We have discussed very generally the question of determining the numerical expressions of norm indices. How then are we to turn from such indices to estimation of staff positions; what correlations are there between staff positions and the indices given?

In any science, one makes use of a mathematical function between different phenomena which is expressed by a system of formulas and equations. In this regard, we quote D. I. Mendeleyev: "Science begins when one begins to measure; a precise science would be inconceivable without measurement," and the English physicist, W. Thomson-Kelvin: "If you can measure what you are talking about and you can express the result with a number, it means you know something about the subject. But if you are not capable of measuring and expressing it in numbers, your knowledge is sparse and unsatisfactory" (9).

On the basis of numerical expressions of different indices characterizing the volume of activities related to medical care of the public and the feasibility of performing such a volume of work by medical workers, we can find specific mathematical functions. For this purpose, we use the methods proposed by I. I. Rozenfel'd.

For example, a physician who sees patients during office hours at a polyclinic can perform a certain volume of work per year with reference to medical care of the public. This volume of work can be expressed by the formula: $F = ChKxG$, where F is the number of visits that the physician will be able to service per year, Ch is the work load norm for the physician per hour in the office. K is the number of hours that a physician spends on ambulatory visits per day, and G is the planned number of work days per year.

If we replace the symbols with the numerical expression of the corresponding indices, for example for a general practitioner (therapist), we shall obtain: $F = 5 \times 3 \times 281 = 4,215$. Thus, the general practitioner would be able to service 4,215 polyclinic visitors per work year. Then let us determine how many individuals the therapist can service within the same year at home. For this we use the same formula, inserting the appropriate numerical expressions: $F = 2 \times 3 \times 281 = 1,686$ house calls per work year. If we add the volume of work of the therapist referable to polyclinic visits and house calls, we find that the therapist can service $4,215 + 1,686 = 5,901$ people a year, with a 6-hour work day. But the stipulated position is established with reference to the ambulatory polyclinic area of work on the basis of a specific number of people serviced, rather than on the volume of work that an individual can perform per year. How are we to determine this number of people? We have discussed above the index of medical care requirements of the public, and, in particular, with regard to ambulatory polyclinic services. Let us use the numerical expression of this index. With reference to general medicine, the number of visits per resident per year is considered to equal two visits, including care in the home.

In order to determine the number of people that a therapist can service, we can formulate the following function: $Z_h = F/N$, where Z_h is the population size that a therapist can service per year, F is the number of patients that a physician can service per year at the polyclinic and at home, and N is the norm of medical care requirements of the public (in this instance, two visits per year per resident). If we now insert the numerical expressions of the corresponding indices in the above formula, we shall find that in a year a therapist can service a district with a population of 2,950 people = $Z_h = 0/2$.

In the above calculation, we did not take into consideration days of absence of the physician in the course of the year for different reasons that we have already discussed. When determining the staff size, the population size per physician post is decreased by a mean of 10%.

Similarly, one estimates the staff posts referable to other specialists dealing with the ambulatory polyclinic sector of work of a therapeutic and prophylactic institution. Estimation of the number of staff positions for a laboratory technician with higher or secondary education is made using the following procedure. The work load of a laboratory technician is not established according to number of tests; rather, according to number of laboratory units. The annual volume of work performed by a laboratory technician is expressed as follows: $F = Y_e \times G$, here F is the number of laboratory units that a technician can perform per year, Y_e is the number of laboratory units per work day (work norm), and G is the number of work days per year for the laboratory technician. By replacing the symbols with the corresponding numbers, we find that a laboratory technician will be able to perform the following amount of work in a year: $F = 36 \times 287 = 10,332$ laboratory units for first and second category laboratories; $F = 30 \times 287 = 8,610$ laboratory units for third and fourth category laboratories.

We can determine the number of visits to the polyclinic or number of patients in the hospital to which such a volume of laboratory technician work corresponds per year using the formula: $Ch = F/N$, where Ch is the number of visits to the polyclinic or number of patients in the hospital, F is the number of laboratory units that the technician can perform in a work year, and N is the number of laboratory units per visit or per hospitalized patient for the duration of his hospitalization (mean). By inserting the appropriate sample numerical expressions of the indices, we will find that laboratory technicians can service the following in the course of one year: $Ch = 10,332/0.15 = 68,880$ visits to polyclinics, in first and second category laboratories; and $Ch = 8,610/0.15 = 57,400$ visits with respect to third and fourth category laboratories. With reference to hospitalized patients they can service $Ch = 10,332/9 = 1,148$ patients in first and second category laboratories, and $Ch = 8,610/9 = 956$ patients in third and fourth category laboratories.

While we computed the number of physician posts on the population serviced with regard to polyclinic office hours, it is not expedient to calculate the number of laboratory technician posts on the basis of population, since the laboratory tests are performed after referral by the attending physician. For this reason, it is more correct to estimate the laboratory technician posts on the basis of physician posts referable to ambulatory visits or number of patients in the hospital.

From the preceding calculation we know the number of visits that a laboratory technician post can service in a year. We also know that a therapist can service 5,311 visits per work year. By inserting the figures representing visits that a laboratory technician can service and the visits that a therapist can service in the formula $V = Ch/F$ (where V is the number of physician posts that a laboratory technician can service in a year, Ch is the number of visits that the technician can service in a work year, and F is the number of visits that a therapist can service per year) we shall obtain the following figures: $V = 68,880/5,311 = 13$ (in a round figure) therapist posts for first and second category laboratories, and $V = 57,400/5,311 = 11$ therapist posts (rounded figure) for laboratories in the third and fourth categories--as the number that one technician can service per work year.

A similar estimate is made when we turn from the indices to laboratory technician positions in the hospital, as well as for the roentgenological service in the polyclinic and hospital.

A different approach is used when we turn from norm indices to staff posts, to estimate the position of resident physicians to service hospitalized patients.

In the foregoing, we cited the standards of daily work loads for the resident physician, expressed in number of beds per physician post. These standards are also the direct expression of the standard of number of physician posts at a hospital, regardless of the standard of hospital bed requirements of the public.

Method of Setting Staff Standards

We now come to the last part of the work dealing with setting staff standards, and that is preparation of staff standards for an institution as a whole and writing them up as a document. Before we discuss the method, we must define the staff standard. In the public health system, the staff standard is the number of posts referable to an appropriate category of personnel established in relation to conditions determining the content and scope of their activities. This is the only criterion with which to determine the staffs of different medical institutions.

To establish the staff standards, we have to choose an index (gauge), in relation to which determination is made of the number of medical personnel positions.

The staff standards can be determined in accordance with a single index which includes various types of medical care (hospital--polyclinic--care at home), or according to several indices each of which determines only one type of care or makes an adjustment to the main index selected to characterize the volume of therapeutic and preventive care rendered.

The choice of either principle in setting staff standards is determined by the conditions under which the therapeutic and prophylactic institution operates, as well as the essence of its work, organizational structure and a number of other factors that affect the medical personnel staff size. The index used to determine staff standards should meet the following main requirements: a) it should reflect the volume of work performed; b) it should include all or the main factors that influence the medical personnel staff size; c) it should be flexible when applied to specific conditions under which therapeutic and prophylactic institutions operate; and d) it should meet the planning specifications.

The staff standard can be either unique (consolidated) or differentiated. Let us give an example.

In a unified hospital, a therapist may perform work dealing with polyclinic services to the public, including house calls, and with caring for patients in the hospital. We can determine the number of such positions on the basis only of number of beds in the hospital of a unified institution, i.e., we can establish the consolidated staff norm. Such determination of the staff standard is used in the existing staff standards of medical personnel for rural therapeutic and preventive institutions--district rural hospital, rayon hospital, as well as oblast hospital. In an oblast hospital, the staff of therapists is set on the basis of one post per 10 beds. Physicians who hold these posts provide consultant, polyclinic, hospital, and visiting consultant medical care to the population of the oblast. However, the bed resources of the general medical departments are not the same in different oblasts, nor is the population size the same. In most oblasts there is no consistency between population size and number of beds in general medical departments. For

example, there may be the same number of beds, for example 50, in the general medical departments of two oblast hospitals, while the population size is not the same (600,000 in one oblast and 1,800,000 in the other).

If the standard is set only in relation to the number of beds, both oblast hospitals would be provided with five therapist posts, but the volume of their activities with regard to consultant polyclinic and scheduled visiting consultation work would differ by three times.

Does the choice of index in this instance meet the conditions in relation to which the staff standards are calculated? This index reflects only part of the work performed, and does not include the conditions under which the polyclinic and traveling area of work proceeds. It is flexible only in relation to the bed resources of the hospital, but it is absolutely inapplicable with reference to the size of serviced population. It is easy to plan using such an index, but such planning does not meet the actual medical personnel requirements. Here is another example. The number of staff positions of therapists referable to the polyclinic sector of work is determined in relation to population size, as is the case with reference to the urban population. In the foregoing we calculated that one therapist post can service 2,655 residents in the district. For the standard to be acceptable to planning and easy for calculations, it is best to use a round population size--1,000, 10,000, 100,000. We thus arrive at the conclusion that therapist posts are set on the basis of 3.76 posts per 10,000 serviced population or, in round figures, 4 positions per 10,000 residents.

This index fully reflects the volume of work, since the calculations took into consideration the polyclinic care requirements of the public as well as the requirements with regard to house calls. It takes into consideration the work day schedule, organization of work and several other factors; it is flexible for use under specific conditions of activities of therapeutic and prophylactic institutions; it takes into consideration the possibility of differences in population size of the district serviced. In planning, it is simple to use it for calculations and it does reflect the actual requirements as to medical personnel staff size referable to a given category.

We see from these examples that the choice of an index is an important stage in setting staff standards. Before establishing the index (on the basis of which the number of posts is determined) it should be submitted to thorough and comprehensive analysis.

The final stage of work is to size the standards for each type of therapeutic and preventive institution. Determination of strictly coordinated staff standards is generally called "drawing up" staff standards as a document that summarized a certain group of standards. On this basis, the size of personnel staff of a medical institution is established.

The staff standards can be drawn up in the form of a model staff, staff standards, or a mixed form. The choice of either principle of drawing up the document is made on the basis of the method of public health planning.

Let us consider through one example the form in which a standard-related document is drawn up. Let us begin with the previously developed form of model staff. The principle involved in a model staff consists of establishing a strictly specific number of positions for an institution of a given type and size. As an illustration, the following table submits the standards determined by the model staff principle.

<u>Name of position</u>	<u>Number of posts in hospitals with following numbers of beds</u>					
	<u>150</u>	<u>100</u>	<u>75</u>	<u>50</u>	<u>35</u>	<u>25</u>
Therapist	3	2	1	1	1)	
Therapist -- infectious disease specialist					1)	1
Surgeon	1	1	1	1	1)	
Nurse in hospital	2	1	1	--	--	
Attendant in hospital	27.5	23.5	20	14	9.5	8
	26	22	19	13	10	10

We have listed some of the medical personnel positions from the staff standards for rayon hospitals in rural rayons which had previously been based on the principle of model staff. In this example, a typical feature is that a specific number of positions of medical personnel in each category is entered for each hospital size. For example, we are dealing with a 100-bed hospital in a region that services 50,000 people, or a region with a population of 100,000; the number of positions referable to therapists and infectious disease specialists will be given as being the same. True, when determining the hospital bed requirements of the public, in this case 2 beds per 1,000 population, the population serviced should be in a district of 50,000 people. But, in reality, we do not observe such a strict pattern and there may be instances when the population in the area serviced by a 100-bed hospital will constitute 100,000 people. To service patients in a hospital, 2 physician posts are required (on the basis of 25 beds per physician); there remains 1 therapist post to service 100,000 people, instead of 50,000, on an ambulatory basis. In view of the fact that the staff specifications provide 1 administrative position, they actually provide 3 posts for ambulatory services; i.e., when the population serviced constitutes 100,000, there will be 1 therapist post per 33,000 people, and with a 50,000 population size there will be 1 post for less than 17,000. The difference is large. Consequently, in this case, drawing up the document in accordance with the model staff principle does not satisfy public health requirements.

A more flexible estimate of the required number of medical personnel can be made according to the principle of staff standard--for example, as indicated in order No. 830, 11 November 1966, of the USSR Ministry of Health.

The number of physician posts for ambulatory polyclinic care of the public is established on the basis of the following data (Table 25a).

The principle of the staff standard provides for the possibility of determining the number of personnel as related to the actual volume of activities.

Drawing up the staff standards as a document may be mixed; i.e., some of the positions may be formulated as a staff standard and some as a model staff. An example of such formulation could refer to the staff standards for a unified hospital where the medical personnel is according to the staff standard principle, while the administrative personnel is set up according to the model staff principle.

Setting staff standards for sanitary-prophylactic, sanatorium-resort and other institutions is performed using the same methodological approaches, but with strict consideration of the specific features in the activities of each type of institution.

Methods of Applying Staff Standards

Staff standards are set and approved by the USSR Ministry of Health as a single document for institutions of the Soviet Union. On the basis of this document, each institution estimates the medical personnel staff size, on the basis of the volume of its activity.

Further improvement of therapeutic and preventive care of the public, and the more rational placement and utilization of medical personnel make it imperative to pursue systematic work to perfect the staff standard system. In recent years, some new staff standards have been adopted for a number of public health institutions, such as tuberculosis hospitals (order No. 97, 2 March 1964), infectious hospitals (order No. 97, 18 February 1965), republic-level oblast (kray) and municipal blood transfusion stations (order No. 135, 4 March 1965), central rayon and rayon hospitals, district hospitals, walk-in and feldsher-midwife centers (order No. 830, 11 November 1966), and several others.

The new staff standards contain some new principles and methods with respect to setting and formulating them such as: 1) the principle of model staff is replaced by establishing the staff size according to the standards principle; 2) standards are set separately for ambulatory polyclinic (on the basis of population) and hospital (on the basis of beds) services; and 3) the index, "medical district," has been replaced with the index of "population size" (1,000, 10,000, 100,000 population).

Table 25a

Title of physician post	Number of posts per 10,000 population		
	Living in settlement where hospital is located and directly serviced by it	Living outside of settlement where hospital is located, but directly serviced by it (attached district)	Living elsewhere in the region serviced by the hospital
Therapeutist (GP)	3.0	1.0	0.2
Surgeon (traumatologist-orthopedist)	0.6	0.4	0.2
Obstetrician-gynecologist	0.6	0.4	0.1
Pediatrician	2.1	0.6	0.2
Otolaryngologist	0.3	0.3	0.1
Ophthalmologist	0.3	0.3	0.1
Neuropathologist	0.5	0.3	0.1
Dermatovenereologist	0.3	0.2	0.1
Phthisiologist	0.5	0.4	0.3
Stomatologist (dentist)	<u>1.8</u>	<u>1.7</u>	<u>0.2</u>
Totals	10.0	5.6	1.6

Unlike the staff standards that were previously in effect, the new ones present a substantial difference in that when planning medical personnel requirements for a rayon, oblast, or republic as a whole, estimates must be made for each medical institution. Let us clarify this in an example. N-skaya oblast has ten rayon hospitals, including two 150-bed hospitals, four 100-bed hospitals, four 75-bed hospitals, and 30 district hospitals, including five with 50 beds, ten with 35 beds, ten with 25 beds, and five with 15 beds each.

Since the previously effective staff standards for rayon and district hospitals were drawn up in accordance with the model staff principle, the requirements with regard to medical personnel posts were calculated simply by multiplying the number of hospitals by the number of positions set in the staff standards, namely, $2 \times 24.5 = 49.0$ physician posts, $4 \times 20.5 = 82.0$ physician posts, $4 \times 18 = 72$ physician posts, for a total of 203 physician posts in the rayon hospitals.

In just the same way, calculation was made of the required number of posts referable to other categories of personnel in both rayon and district hospitals.

The new staff standards require calculation of staff size directly for each medical institution, taking into consideration its structure and size, the size of serviced population, as well as of the existence of other medical institutions in the serviced area. Let us discuss order No. 830, dated 11 November 1966, as an example of the principal methods of applying staff standards.

We submitted the standards of number of physician posts for ambulatory polyclinic services to the public. How these figures were obtained is illustrated in Table 26. The discrepancies of digits following the decimal point are due to some corrections made in the course of final editing of the order.

In Table 26, on each line, the first number indicates the number of visits per resident per year in a given specialty; the second figure the population size; the third the number of visits that a given specialist post can service in the course of a work year; and the last figure the number of physician posts, as a round figure, per 10,000 population, i.e., the staff standard. When using the data pertaining to number of visits per resident per year referable to general medicine and phthisiology, it should be borne in mind that this number does not include house calls, but the physician post, referable to these specialties was calculated entirely by excluding from the estimates the time spent to service house calls from his daily work schedule. In order to estimate the time spent on other types of work and to pay house calls for specialists, we have to use data pertaining to work load standards per hour of work and on the number of days of work for that position in the course of the year.

In the calculations, the following numbers of work days per post were used:

- 270 days -- therapist [GP] servicing the settlement where the hospital is located and the attached district
- 270 days -- therapist servicing outlying parts of the rayon
- 270 days -- surgeon servicing the settlement where the hospital is located, and the attached district
- 260 days -- surgeon who services outlying parts of the rayon
- 280 days -- obstetrician-gynecologist who services the settlement where the hospital is located and attached district
- 270 days -- obstetrician-gynecologist who services the outlying regions
- 275 days -- pediatrician servicing the settlement where the hospital is located and the attached district
- 270 days -- pediatrician servicing the outlying regions
- 260 days -- otorhinolaryngologist in both estimates
- 260 days -- ophthalmologist in both estimates
- 260 days -- neuropathologist in both estimates
- 280 days -- dermatovenereologist servicing the settlement where the hospital is located and the attached district
- 270 days -- dermatovenereologist servicing the outlying regions
- 275 days -- phthisiologist servicing the settlement where the hospital is located and the attached district
- 270 days -- phthisiologist servicing outlying regions
- 280 days -- stomatologist (dentist) servicing the settlement where the hospital is located and the attached district
- 275 days -- stomatologist (dentist) servicing the outlying regions

We submit an example of estimating the work time involved per therapist post servicing the settlement where the hospital is located. According to Table 26, the volume of the therapist's work consists of 4,050 visits per year (for 270 work days). We divide 4,050 by 270; we find that there are 15 visits per work day. Since the work load per hour is 5 visits, by dividing 15 by 5 we find the required time of 3 hours. However, the therapist's work day is 6.5 hours long. Consequently, 3.5 hours are assigned daily to make house calls and perform other types of work.

Table 26

ESTIMATION OF NUMBER OF PHYSICIAN POSTS IN A RAYON HOSPITAL PER 10,000 RURAL
RAYON POPULATION FOR AMBULATORY AND POLYCLINIC CARE

Post Title	Physician posts per 10,000 population in:		
	Rayon center where hospital is located	Attached district	Outlying parts of rayon serviced by medical institutions
Total			
Breakdown:	10,0	5,5	1,5
Therapeutist	(1.2 x10,000): 4,050=3.0	(0.63x10,000): 6,750=0.9	(0.13x10,000): 6,750=0.2
Surgeon	(0.7 x10,000):12,150=0.5	(0.42x10,000):11,700=0.3	(0.17x10,000):11,700=0.1
Obstet.-gynecologist	(0.5 x10,000): 7,000=0.7	(0.3 x10,000): 6,750=0.4	(0.07x10,000): 6,750=0.1
Pediatrician	(0.7 x10,000): 3,437=2.0	(0.4 x10,000): 6,750=0.6	(0.10x10,000): 6,750=0.1
Otolaryngologist	(0.35x10,000):10,400=0.3	(0.25x10,000):10,400=0.2	(0.10x10,000):10,400=0.1
Ophthalmologist	(0.35x10,000):10,400=0.3	(0.25x10,000):10,400=0.2	(0.10x10,000):10,400=0.1
Neuropathologist	(0.3 x10,000): 6,500=0.4	(0.20x10,000): 6,500=0.3	(0.06x10,000): 6,500=0.1
Dermatovenereologist	(0.5 x10,000):11,200=0.4	(0.35x10,000):10,800=0.4	(0.5 x10,000):10,800=0.05
Phthisiologist	(0.4 x10,000): 5,500=0.7	(0.20x10,000): 5,400=0.4	(0.20x10,000): 5,400=0.4
Stomatologist	(1.0 x10,000): 5,390=1.7	(1.0 x10,000): 5,250=1.8	(0.13x10,000): 5,294=0.25

It is apparent from the foregoing that the staff standards play a rather important part in rational deployment of the network of therapeutic and prophylactic institutions. They make it possible to solve the problem of actual need to organize a special type of medical institution.

For example, a new rural rayon with a population of 60,000 has been organized. According to the conditions that were formed in this rayon, there is only one 300-bed unified hospital located in a city which is the rayon center, whereas for the rest of the territory only feldsher-midwife centers were organized. This simplified example was chosen exclusively for the purpose of demonstrating the methodological approach to the calculations.

In order to determine the personnel requirements, we must know how the population is distributed over the rayon, i.e., the number of inhabitants in the rayon center (for example, 20,000), the number of inhabitants in the attached (allocated) rural district (for example, 40,000, since there are no district hospitals), the structure of the bed resources of the existing hospital (for example, 60 beds for general medicine, 60 for surgery, 30 for obstetrics and gynecology, 30 for children, 20 for infectious diseases).

We shall make the calculations on the example of polyclinic and hospital resident physician posts. We shall determine how many posts there should be according to the staff standards (order No. 830 dated 11 November 1966).

Ambulatory polyclinic service:

Total for the rayon center	$20,000 \times 10 = 20$ posts
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Breakdown:

Therapist	$20,000 \times 3 = 6$ posts
Surgeon (traumatologist-orthopedist)	$20,000 \times 0.6 = 1.2$ posts
Obstetrician-gynecologist	$20,000 \times 0.6 = 1.2$ posts
Pediatrician	$20,000 \times 2.1 = 4.2$ posts
Ophthalmologist	$20,000 \times 0.3 = 0.6$ post
Otolaryngologist	$20,000 \times 0.3 = 0.6$ post
Neuropathologist	$20,000 \times 0.5 = 1.0$ post
Dermatovenereologist	$20,000 \times 0.3 = 0.6$ post
Phthisiologist	$20,000 \times 0.5 = 1.0$ post
Stomatologist (dentist)	$20,000 \times 1.8 = 3.6$ posts

Total to service the attached rural district

40,000x5.6 = 22.4 posts

Breakdown:

Therapist	40,000x1.0 = 4 posts
Surgeon (traumatologist-orthopedist)	40,000x0.4 = 1.6 posts
Obstetrician-gynecologist	40,000x0.4 = 1.6 posts
Pediatrician	40,000x0.6 = 2.4 posts
Otorhinolaryngologist	40,000x0.3 = 1.2 posts
Ophthalmologist	40,000x0.3 = 1.2 posts
Neuropathologist	40,000x0.3 = 1.2 posts
Dermatovenereologist	40,000x0.2 = 0.8 post
Phthisiologist	40,000x0.4 = 1.6 posts
Stomatologist (dentist)	40,000x1.7 = 6.8 posts

By adding and rounding off both results we find that to provide ambulatory polyclinic services to the people we should have, according to the staff standards, a total of 42.4 = 43 resident physician posts including the following:

Therapist	10 posts -- 10
Surgeon (traumatologist-orthopedist)	2.8 -- 3.0
Obstetrician-gynecologist	2.8 -- 3.0
Pediatrician	6.6 -- 6.5
Otorhinolaryngologist	1.8 2.0
Ophthalmologist	1.8 -- 2.0
Neuropathologist	2.2 -- 2.0
Dermatovenereologist	1.4 -- 1.5
Phthisiologist	2.6 -- 2.5
Stomatologist (dentist)	10.4 -- 10.5

Since the figures were rounded off for each specialty, which is allowed by order No. 830, dated 7 November 1966, the number of resident physician posts was 0.6 higher than in the main estimate.

The stipulated personnel staff size for the hospital sector of work is calculated on the basis of number of beds.

Let us also consider such an example. A unified hospital is located in a city and the staff for its polyclinic was estimated in accordance with the staff standards in order No. 282-m, 1955. According to this order, the number of resident physician posts was established on the basis of 6.3 posts per medical district. The medical districts were organized in the city on the basis of 4,000 people per district. Thus, there were five medical districts (20,000 : 40,000) for the polyclinic.

The number of resident physicians was set at 6.3 positions per 4,000 population = 31.5 posts. If we compare this to the previous calculations, we see that the staff standards provide for an additional 11.5 resident physician posts for ambulatory and polyclinic services to the public.

The question as to whether these posts should be manned at the rayon hospital or whether they should be used to organize therapeutic and prophylactic institutions in outlying parts of the rayon is settled by public health body administrators of the rayon, oblast and republic, depending on the local conditions in that rayon.

This example shows that the use of staff standards in making decisions as to development of the therapeutic and prophylactic network will be of considerable assistance to the administrators of public health institutions and bodies with regard to correct and rational utilization of medical personnel.

The differences in conditions under which different public health institutions operate influence the medical personnel requirements, both in the direction of an increase and decrease in number of personnel according to categories and specialties. For this reason, it is not mandatory to automatically fill all of the staff positions in institutions, as provided by the relevant staff standards.

For the purpose of making rational use of medical personnel, order No. 830 (10) which we used as an example has provisions for allowing the public health institution administrators, if necessary, to build up some structural departments or to add positions that are not provided for in these standards, by making use of posts referable to other structural departments and by making the appropriate changes in the scheduled staff of the institution following established procedure--within the boundaries of the staff standards for different categories of personnel (administrative physicians in structural departments; physicians and workers that are on the same footing with them; paramedical personnel; junior medical personnel).

This statement gives the right to chief physicians to use personnel in their institution in accordance with a need that has emerged as a result of the specifics of its activities. At the same time, the administrators of therapeutic and prophylactic institutions must make use of the staff standards when estimating specialist posts for the

ambulatory polyclinic sector of work, with due consideration of the availability of other institutions in the service area who also serve the public (polyclinics of medical and health centers, dispensaries, consultation offices, etc.).

If such institutions exist in the area serviced by the institution for which the staff is being estimated, determination of the required number of physician posts is made with due consideration of their availability according to different specialties in the other institutions.

Medical services to patients in the evening and night hours (physician duty) in hospitals is usually implemented by the on-staff physicians of the hospitals within the range of their monthly work time norm.

In order to demonstrate the method of estimating physician services in the evening and at night (and this includes days off and holidays), we shall make this estimate according to the annual work time, rather than the monthly, with conversion per work day, since each month does not have the same number of days off and holidays.

Before he makes the estimate, the administrator of the institution must make a basic decision as to the extent to which the work day can be shortened without detriment to the quality of patient care and without increasing the intensity of the physician's work. To settle this question, the institution administrator should analyze the actual activities of the resident physician, with due consideration of the extent to which a given department is loaded with patients. Planning of bed-days in urban therapeutic and prophylactic institutions is made on the basis of bed occupancy for 340 days a year. The actual mean bed occupancy per year, and hence the number of patients in the departments, is smaller than the number of estimated beds. Thus, in the course of a work day, the physician does not service the complete number of patients stipulated according to the standard.

Such analysis enables the institution administrator to shorten the work day of the resident physician with reference to direct patient care at the hospital, and to use the time thus made available to provide patient services in the evening and at night, as well as on days off and holidays. All of the foregoing was taken into consideration in the staff standards, where it was indicated that physicians on the regular hospital staff would perform such duty to be credited to the monthly norm of their work time.

For example, in a therapeutic and preventive institution, the work day of a physician is reduced by 30 minutes that are applied to his off-hour duty. When it deals with caring for hospitalized patients, the on-duty physician has a shift that begins at 1500 hours and ends at 0900 hours the next morning. We then must determine the number of physician posts from each of which 30 minutes should be deducted from the work day to provide at least for one on-duty physician to care for patients in the absence of the resident physician attending these patients.

The number of hours that a physician on duty works depends on whether he has sleeping privileges or not since, when he does have such privileges, his work time from 2200 to 0600 hours is computed on the basis of 30 minutes per hour of presence on duty. In other words, he is considered to have worked for four hours in an 8-hour duty shift.

On this basis, when duty must be served without sleeping privileges, one must allow for 5,526 hours per year, and in the case of duty with sleeping privileges--4,398 hours per year. In addition, one must also make provisions in the course of the year for an on-duty physician for Sundays and holidays and this, in turn, will require 1,392 hours a year without sleeping privileges. If we add these two figures we find that duty in off-hours and holidays must be provided as follows: 6,918 hours without sleeping privileges (5,526+1,392) and 5,558 hours with sleeping privileges (4,398+1,160).

In order to determine the number of physician posts from which one must deduct 30 minutes of work time per day, we must divide the number of hours of duty per year by the number of work days of resident physicians in the work year. Thus, in case of duty without sleeping privileges, there are 24.2 hours (6,918:286) per work day and with sleeping privileges--19.4 hours (5,558:286). Thus, to assure the back-up of one physician post per year one should reduce the work day by 30 minutes daily for 12 physician posts in the former case and for 9.7 in the latter.

The number of work days per year for a resident physician is considered to constitute 286 days provided that there is an equal number of resident physicians entitled to leaves of 24 and 18 work days. In those cases where there is a different proportion between resident physicians who are allowed a different time of leave, the calculation is somewhat different.

When the number of posts occupied by resident physicians is greater than necessary to make provisions for off-hour duty (by deducting 30 minutes of work time daily) the work day is reduced to a lesser extent.

If, however, a deduction of the work day does not yield enough hours to cover duty, on the basis of the physician staff size, there is an additional wage fund for the balance of the time, and it is based on the mean salary of resident physicians who will take over the off-hour duty.

One should discuss in somewhat greater detail the question of off-hour duty in maternity homes. The work load of a resident obstetrician and gynecologist is established with due consideration of the fact that the obstetrician-gynecologist spends half his work day on duty service. As a result, the work load per resident obstetrician-gynecologist is established at 50%, i.e., instead of 30 beds in the postpartum department, the staff standards provide for 15 beds in maternity homes. For this reason, the maternity home administrators should bear in mind that before they reduce the work day of obstetrician-gynecologists working in gynecological consultation

offices, they should make complete use of the time assigned to duty service of all doctors working in the maternity hospital.

In the existing staff standards, estimation of the number of medical personnel posts for a specific medical institution is made on the basis of two main formulas. The first formula states that posts of resident physicians are established on the basis of 1 or 0.5 post for a specific number of beds in departments ... and a second formula, according to which medical personnel posts are established according to number of beds or physicians. For example, the number of posts of laboratory technicians with higher education is established as follows: to service hospital patients according to number of beds in the hospital ... to service ambulatory patients, according to the number of physicians on the staff who have office hours for ambulatory patients....

The difference between these formulas consists of the fact when using the "on the basis of" formula part of the posts are established for a smaller number of beds or physicians than provided in the standards, whereas with the "according to" formula, the number of posts is established only for the number of beds or physicians stipulated in the staff standards. Thus, in the above example, one post of roentgenologist is established in the presence of 15-30 physicians holding office hours. With fewer physicians who see ambulatory patients, no post of roentgenologist is established, not even 0.5 post.

After making the necessary calculations, the summary figures are rounded off in accordance with the following rule that is used in all of the staff standards adopted in recent years: figures up to 0.25 are rejected, figures over 0.25 to 0.75 are rounded off to 0.5, while those over 0.75 are rounded off to 1.

The change of medical institutions to a 5-day work week has made changes in the work schedule of medical personnel, however, the hourly work load and the number of hours in the work week have remained unchanged. For this reason, the change to a 5-day work week does not require any adjustments to the established staff standards or to the methods of setting them. Bearing this in mind, as well as the fact that at the time this chapter was written the changes in medical personnel work schedule related to the changeover to a 5-day work week had not been distinctly worked out, we deemed it feasible to retain in the relevant parts of this chapter the calculations based on a 6-day work week.

FOOTNOTES REFERRED TO IN CHAPTER 8

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10. Order No. 830, dated 11 November 1966, of the USSR Ministry of Health: "Staff Standards Referable to Medical Personnel and Kitchen Workers in Central Rayon and Rayon Hospitals, District Hospitals, Walk-In Offices, and Feldsher-Midwife Centers," p. 27.

Chapter 9

PLANNING MEDICAL PERSONNEL SUPPORT OF THE PUBLIC HEALTH NETWORK

One of the most important areas of public health planning is the planning of the supply of medical personnel and the training thereof. In the history of public health there were times when medical personnel constituted the weak point that retarded development of the network of medical institutions. This was the case, for example, during the years of the first 5-year program. In spite of the steps that were taken to broaden personnel training and shorten training time at higher and secondary medical educational establishments, at that time there were some serious difficulties in manning the newly deployed network of public health institutions with medical personnel, particularly in industrial regions and rural areas. Physicians began to hold more than one job and this practice exists to this day.

Medical personnel planning should combine balance estimates with planning of operational measures pertaining to placement, training and advanced training of physicians and paramedical personnel. Planning workers should conduct this work in close collaboration with personnel workers, administrators of operational departments and chief specialists of public health bodies.

The main index in planning physician personnel requirements and availability to the public is the number of physician posts. On the basis of a certain coefficient reflecting the physicians who hold more than one job, in the presence of a given number of physician posts one can establish the number of physicians required to replace them. In the future, as the practice of holding two jobs diminishes and then will be completely eliminated, we shall be able to abandon such an index as physician post, and plan directly the number of necessary physicians.

Here, we encounter the third meaning of the "physician post" index. Before, we analyzed it as an index of ambulatory polyclinic care of the public and as a complex index of development of all therapeutic and prophylactic services and other areas of public health. In the following presentation, this index will be discussed as the index of requirements as to physician staff.

Evaluation of Availability of Physician Positions to the Public

Planning of physician staff begins with evaluation of availability of physicians to the public.

When evaluating availability of physicians in different republics, oblasts and cities, we can use three methods: a) the method of estimating number of physicians as related to population; b) the method of analyzing physician posts that are occupied; and c) the method of comparing to staff standards.

The index of availability of physicians to the public by means of estimation per 10,000 population is the most general index. It is suitable for international comparisons, particularly to capitalist countries where there is a basically different system of rendering medical care to the people. The differences in system of medical care must be taken into consideration when evaluating the magnitude of this index in international comparisons. For example, in 1963 there were 22.1 physicians per 10,000 population in the USSR and 18 physicians per 10,000 in the United States. However, the actual availability to the broad masses is not 1.2 times greater in the USSR, as compared to the United States, as a simple arithmetic correlation of these indices indicates. Rather, it would be considerably greater since in the United States the fact that medical care has to be paid for makes qualified care by a physician inaccessible to the needy stratum of the population.

The data referable to number of physicians in the USSR, according to different Union republics (as of 1 January 1959 and as of 1 January 1966), and availability thereof to the public of the Union republics are submitted on page 80 (Table 2).

To compare the availability of physicians in different Union republics and oblasts within the country, one must also analyze separately the number of physicians per 10,000 urban and rural population, since the distribution of the population in cities and rural areas influences the magnitude of this index.

However, as we have already indicated, the distribution of physicians in urban and rural areas does not yet furnish an idea about the actual availability of physicians to the urban and rural population, since the physicians who work in cities also render medical care, to a significant extent, to the rural population.

The administrators of public health bodies and medical institutions usually assess their need for personnel, as related to their regular staff capabilities and number of physician posts that are not filled. In fact, no matter how great the need for physicians in a given specialty, it cannot be satisfied if the corresponding vacancies do not exist. When requests are made for young specialists graduating from medical VUZ, public health agencies justify them with the existence of vacancies. However, the indices of staff availability do not always correspond to the indices of number of physicians based on population size. Thus, with a high degree of occupancy of physician posts in the network of medical institutions, the index of number of physicians per 10,000 population may be low, and vice versa. This depends on the development of the network of medical institutions and extent of availability to the public of hospital and ambulatory polyclinic care, as well as the existing staff indices.

In order to analyze the established staff availability and extent to which the network of medical institutions is manned by personnel, the following indices are used (in absolute figures and per 10,000 population): a) number of established physician posts (established availability); b) number of physician posts occupied; c) extent to

which the established physician posts are filled (number of posts occupied, as percentage of established number of posts); d) number of physicians; e) coefficient of holding more than one post (mean number of posts held by one physician, which is obtained by dividing the number of occupied physician posts by the number of physicians); and f) number of physicians per established physician post.

The occupied physician posts are taken into consideration only for the reported year and according to expected fulfillment for the current year. The plan indicates only the established staff posts, since it would be wrong to plan in advance for an incomplete manning of physician posts.

The initial index, to determine the rate of increase in physician posts in the plan, is the number of occupied rather than the number of established posts, since this index expressly determines the number of physicians and the amount of financial and material funds expended; i.e., the initial material base.

The availability of physicians per 10,000 population does not necessarily correspond to the extent to which physician posts are manned. Let us compare, for example, the Belorussian and Armenian SSR. According to the number of physicians in relation to urban population, the Belorussian SSR is better provided for; in the cities of Belorussian SSR there are 38.2 physicians per 10,000 population, and in the cities of Armenia 34.5 physicians. However, there are 83.9 physicians per 100 established posts in Armenia and only 70.8 physicians in Belorussia. More physicians hold more than one job in the cities of Belorussian SSR than in Armenia: 1.30 versus 1.14, whereas the manning of physician posts is somewhat lower--92.0 versus 95.7. We can attribute this situation to the fact that in Belorussia there are 59.4 established posts per 10,000 urban population, and 43.2 in Armenia. This, in turn, may be related to differences in the established staff standards or in the network structure. Such an analysis is significant to planning in that, evidently, more attention should be devoted to the question of providing physicians in Belorussia (to reduce the practice of holding more than one job and to improve the manning of physician posts), whereas in Armenia, one should investigate the reasons for the low established staff and, if necessary, make adjustments.

The study of the extent to which physician posts are manned discloses some realistic opportunities for better manning of the existing and planned public health networks in different republics and oblasts. However, since the actual established staff availability may vary, and this may depend on different reasons, such a method is not suitable for comparison of the existing levels of availability of physicians in different republics and oblasts, and for the taking of steps to eliminate existing disproportions. The republics and oblasts in which the established staff is too large could be less well manned, and this creates the false impression that there is a great need for medical personnel in these areas.

Determination of Physician Requirement

The most rational method of comparative evaluation of availability of physicians in different republics, oblasts, cities and rayons, particularly in long-term planning to determine the demand for physicians, is to compare the number of physician posts to the number that should have been found both in the existing and planned network according to the established staff standards. This establishes a single criterion for all Union republics and oblasts. Such a method eliminates the advantages that occur by chance in some republics that are provided with a larger number of established posts. With reference to each individual medical institution, the number of posts corresponding to the staff standards could be readily determined by means of a direct calculation. Nor is it very difficult to estimate the demand concerning posts for a rayon or small town. However, for an entire republic or oblast (or a large city with a large network of public health institutions--let alone the entire Soviet Union) such a direct calculation would require much labor and time.

For this reason, it became necessary to create consolidated established staff standards that could be used as the basis to estimate physician post demand. In 1957, a group of workers in the department of economics and public health planning of the Institute of Public Health Organization and History of Medicine imeni N. A. Semashko, under the guidance of G. A. Popov (on the basis of a study of the volume and structure of the network of public health institutions in the USSR and the established staff standards approved by orders of the USSR Ministry of Health) developed mean consolidated indices for the USSR to calculate the overall physician post demand referable to therapeutic and prophylactic services to the urban population. These indices are submitted in Table 27.

The consolidated indices worked out in 1957 included 3.5 physician posts referable to stomatology for polyclinic services per 10,000 population. In view of the increased standard of visits per urban resident referable to stomatology, the number of posts (stomatologist and dentist) was increased to 4.25. The total number of physician posts referable to ambulatory clinical services to the public was increased from 22.8 to 23.55, or by 0.75 post per 10,000 urban population.

The consolidated indices described above retain their main significance to this day, not only from the methodological point of view but because they constitute, as a result of their tangible content, a certain standard based on mean Union data that could be used to work out the relevant consolidated indices for Union republics and oblasts.

We now turn to the question of method of such estimates with due consideration of the distinctions of each republic or oblast.

With reference to hospital care in cities, this question is relatively easy to answer. The planned number of hospital beds in cities and their distribution according to specialties, is the starting point for determination of the number of established staff posts. This also takes into consideration the beds used to care for the rural population

Table 27

CONSOLIDATED INDICES FOR ESTIMATION OF OVERALL PHYSICIAN DEMAND
REFERABLE TO THERAPEUTIC AND PROPHYLACTIC CARE OF THE URBAN POPULATION*

Name of specialty or area of special care	Number of physician posts	
	Per 10,000 popula- tion for ambulatory polyclinic care	Per 100 hospital beds for hospi- tal care
Management	0.53	0.86
General medicine (district residents)	3.75	0.97
General medicine (off-hour duty)	0.44	--
Pediatrics (district residents)	2.5	0.92
Obstetrics and gynecology	1.25	1.28
Surgery (including oncology)	1.25	0.8
Otolaryngology	0.5	0.14
Ophthalmology	0.625	0.14
Neuropathology	0.5	0.22
Phthisiology	1.25	0.64
Oncology	--	0.12
Dermatovenereology	0.625	0.18
Stomatology	4.25	0.39
Infectious disease	--	0.73
Epidemiology	0.12	
Roentgenology	0.65	0.45
Laboratory work	0.59	0.41
Physiotherapy	0.38	0.13
Medical physical culture	0.16	0.02
Functional diagnostic office	0.17	0.08

* G.A. Popov, "Physician Personnel and Planning of Their Training,"
Moscow, p. 63, 1963.

Table 27 (continued)

CONSOLIDATED INDICES FOR ESTIMATION OF OVERALL PHYSICIAN DEMAND
REFERABLE TO THERAPEUTIC AND PROPHYLACTIC CARE OF THE URBAN POPULATION*

Name of specialty or area of special care	Number of physician posts	
	Per 10,000 popula- tion for ambulatory polyclinic care	Per 100 hospital beds for hospi- tal care
Dysentery-control office	0.22	--
Therapeutic and prophylactic care of children in nursery school and schools	0.91	--
Therapeutic and prophylactic care of working adolescents	0.16	--
Therapeutic and prophylactic care of industrial workers	1.5	--
Emergency care	1.0	--
Blood transfusion service	0.12	--
Dietetics	--	0.06
Admitting [receiving] department	--	0.12
Pathology service	--	0.24
Medical statistics office	0.16	0.015
Others	--	0.085
Total physician posts	23.55	9.0

* G.A. Popov, "Physician Personnel and Planning of their Training,"
p. 63, 1963.

in urban hospitals. When setting staff standards there is no need to repeat all these calculations, since both the urban and rural population that underwent hospital care in cities are serviced on the same level. For this reason, one should proceed from the mean norm, 9 physician posts per 100 beds, with due consideration of bed availability per 10,000 urban residents, according to the territorial size.

For example: In N-skaya republic, the plan provides for 12 beds per 1,000 urban residents, and 25% of them to service the rural population. With a standard of 9 physician posts per 100 beds, we shall need 9x120/100, or 10.8 physician posts per 10,000 population. Here, the percentage of beds used to service the rural population is not significant. Also, it is not significant whether or not the number of beds in the plan is adequate or inadequate for the hospital care needs of the public.

When estimating the number of physician posts in different specialties for direct patient care in the wards, we proceed from the number of beds per resident physician as set forth by order No. 282, 26 December 1955, of the USSR Ministry of Health. Enlargement of hospitals and departments, as well as implementation of measures for the rational organization of labor of physicians and paramedical personnel, help determine the number of resident physicians, based on a larger work load for the hospital physicians or close to this. As in other cases of determining the number of established staff posts, one should bear in mind that this is not a simple calculating operation; it should include measures to ensure the more rational and economic utilization of personnel toward a better quality therapeutic process.

It is a difficult task to determine the number of department head posts since there are no data in the statistical records pertaining to number of departments, whereas the standards established by order make allowances for a number of variants to resolve this problem--in particular, in relation to department size and the nature of physicians' work in the case of unified hospitals. For this reason we must limit ourselves to an arbitrary calculation and, if possible, pursue some surveys locally. In general, the number of department heads may constitute 15 to 20% of the total number of physicians in the same specialty, including those working in the polyclinic departments of hospitals.

The number of physician posts referable to ambulatory polyclinic services, unlike hospital care, is, at the same time, both a direct network index and an index of personnel demand, and is determined per 10,000 population. For this reason, the method of determining this demand presents several distinctions.

Estimation of physician post requirements for ambulatory polyclinic services in cities should also begin with the first group of posts, directly involved in implementing ambulatory and polyclinic care of the public. With reference to this group, order No. 282-m, 26 December 1955, of the USSR Ministry of Health has established the number of posts for ambulatory polyclinic services to the public. Proceeding from the model estimate that there are 6.3 posts per urban medical district with a population of 4,000, these include the following:

Resident district therapist	1.5	posts
" district pediatrician	1	post
" obstetrician and gynecologist	0.5	post
" surgeon (traumatologist, oncologist, orthopedist, urologist)	0.5	post
otolaryngologist	0.2	post
neuropathologist (psychiatrist)	0.2	post
ophthalmologist	0.25	post
phthisiologist	0.5	post
dermatovenereologist	0.25	post
stomatologist (dentist)	1.4	posts

The corresponding model standards per 10,000 population referable to ambulatory polyclinic care of the urban population (not counting medical diagnostic and therapeutic ancillary types of care) were established by order No. 217-m, 25 October 1954, of the USSR Ministry of Health, and they constitute 15.75 posts per 10,000 population; and, if we count the subsequently added 0.75 post for stomatology, 16.5 physician posts.

Within the boundaries of the total number of physician posts established by the staff standards for ambulatory polyclinic services to the urban population, adjustments can be made with reference to different specialties, with consideration of the age and sex structure of the population and the morbidity level. If the established standards cannot be reached in the planning period because of balance of staff conditions for any reason, provisions should be made for raising the standards with reference to the main positions such as district therapeutic and pediatric services, or the specialties that are lagging the most.

A considerable number of people live in urban settlements with less than a 20,000 population; over half this number reside in settlements with less than 10,000 population. In some republics, for example the Belorussian and Lithuanian SSR, the percentage is considerably higher. In this group of cities, one cannot fully implement the established staff standards that are designed for the population of large cities with a branched and specialized system of ambulatory polyclinic services. The service standards in these populated settlements, a considerable number of which are rayon centers, are only slightly higher than the medical care standards referable to the rural population around them, and from the organizational point of view they are included in essence in the system of organizing therapeutic and prophylactic care in the rayon. According to order No. 830, 11 November 1966, issued by the USSR Ministry of Health, the staff standards established by this order for central rayon, rayon and district hospitals, walk-in and feldsher-midwife centers, extend to these urban settlements.

After making adjustments, taking into consideration the above remarks, we can adopt consolidated indices of staff standards for the planning period, for the urban population referable to the first group of physician posts.

The next stage is to determine the number of posts referable to the first group that should be added for ambulatory polyclinic care of the rural population. The percentage of ambulatory polyclinic visits made by rural residents in cities fluctuates considerably in different republics. The chief factors determining such fluctuations are the distribution of hospitals according to type and, mainly, the share of rayon hospitals in rayons with an urban center--since these hospitals expressly provide services to the rural population.

After determining the number of visits that rural patients will make to urban therapeutic and prophylactic institutions, we can turn to determination of the overall number of posts in the first group. It is assumed that the percentage of posts to service the rural

population equals the percentage of visits. Let us assume that in N-skaya oblast, 16 physician posts per 10,000 residents will be required to provide ambulatory polyclinic care to the urban population and that the rural population will make up 10% of all ambulatory visits. Then, the total number of physician posts for ambulatory polyclinic care in the cities will constitute $\frac{16 \times 100}{100 - 10}$, or 17.8 posts.

After this, we can turn to determination of the number of posts referable to ancillary therapeutic diagnostic offices and laboratories. According to the established standards, the number of posts of roentgenologists, laboratory technicians [physicians], physiotherapists, functional diagnostic office physicians, and physicians dealing with therapeutic physical culture is determined in relation to the number of beds in the hospital or number of physicians directly involved in receiving patients. According to the estimates submitted in Table 27, it constitutes about 13% of the number of posts in the first group. If there is a change in the number of posts in the first group per 10,000 population, there is also a change in the number of posts in the second group. When setting the number of such posts in relation to number of first-group posts, with reference to both polyclinic and hospital services, one should, of course, take into consideration all posts dealing with services to both urban and rural populations.

The established staff standards referable to services to different population groups are determined by their relationship to the size of specific groups, and according to the entire population. Thus, for example, physician posts for the therapeutic and preventive care of children, schools and nursery schools are established on the basis of one pediatrician post per 2,500 schoolchildren or 400-600 nursery schoolchildren. Only after this calculation, knowing the number of schoolchildren and nursery schoolchildren in relation to the overall population size, can we determine the number of such posts per 10,000 urban population.

It is a rather complex procedure to calculate physician posts to provide ambulatory polyclinic care of industrial workers. These posts include the physicians in shop districts of medical and sanitary units and polyclinics in the general public health network, as well as positions of health centers that are part of medical and hospital institutions, or of independent ones. The number of physician posts depends on a number of conditions that are difficult to take into consideration--number of industrial workers and their distribution in different branches of industry, territorial disposition of industrial enterprises, and organizational forms of medical care of workers. By order No. 282-m (26 December 1955, issued by the USSR Ministry of Health), in hospitals with polyclinics (walk-in offices) that are part of medical and sanitary units, the posts of resident physicians are established on the basis of 3.35 posts per medical shop district with 2,000 workers, and per 1,000 workers for enterprises referable to the chemical, mining and oil-refining industry. These staff standards are designed to service patients in the hospital and polyclinic in the fields of general medicine, surgery, obstetrics, and gynecology, as well as for

preventive work in the shops. To provide dental care, these established standards are increased by 0.75 post for a dentist (stomatologist).

If the medical and sanitary unit contains only a polyclinic, the staff standards are reduced by at least 25%, with the exception of the shop physician-district therapist only. In so-called open medical and sanitary units, as well as municipal hospitals that provide medical care for industrial workers, the staff of the hospital and polyclinic is established in accordance with the above-mentioned standards for the overall municipal therapeutic network, with additional assignment of the post of shop physician-district therapist; one post each per medical shop district. These additional posts are not established if there are medical health centers at the industrial enterprises, since the health center physician performs, in this case, the duties of the shop therapist.

When estimating the number of posts for therapeutic and preventive care of industrial workers, one must take into consideration the possibility of duplication in setting standards according to the territorial and shop principle. According to the data of E. M. Gol'dzil'ber, the time spent by territorial-district therapists to service workers who take advantage of shop services constitutes 40% of the time required to service the same number of district residents, who make use only of territorial medical services (1).

Some serious methodological difficulties arise when determining the consolidated indices of physician demand in rural areas. There are no established standards for hospital and ambulatory polyclinic care of the rural population. Medical care of the rural population is distributed among three or four levels with different proportions between them in different republics and oblasts. The percentage of rural residents who are serviced by urban therapeutic and prophylactic institutions varies for different republics and oblasts. The serious flaws referable to establishment of staff standards for rayon and rural district hospitals that existed in order No. 33-m, 4 March 1957, of the USSR Ministry of Health, were eliminated with the issuance of order No. 830, dated 11 November 1966.

However, the general calculation of number of physician posts according to the newly established staff standards and determination of consolidated staff standards for such hospitals can be only approximate at the present time, since we must know the population size in the rayons (urban and rural), rayon centers and high-density settlements, the number of attached districts and their population--and such data are lacking in the statistical reports. The question of staff standards for rayon and rural district hospitals is discussed in greater detail in Chapter 8.

The analysis of availability of stomatologists and dentists in rural rayon and district hospitals should be made together, since the number of dentist and stomatologist posts is not given separately in the established staff standards, whereas in the statistical records the number of established and occupied dentist posts in rural areas is not broken down with reference to rayon and district hospitals.

To the consolidated established staff standards of therapeutic and preventive care of the urban and rural population, we must add the staff standards referable to psychiatric and neuropsychiatric hospitals, sanatoriums and rest homes, creches and infant centers, sanitary and epidemic-control institutions. These standards are as follows (2): 5.0 for psychoneurological hospitals and colonies with 100 beds; 1 for creches in cities, that can accommodate 100 infants; 1 for creches in rural areas that can accommodate 100 infants; 3.3 for child centers with 100 accommodations; and 4.02 for 100-bed sanatoriums (differentiated according to republics).

Computation of the required number of physician posts for sanitary and epidemiological services is a rather complex matter from the methodological point of view, for the following reasons: 1) the activities of the health inspector [physician] or epidemiologist are quite complex and diverse, and they cannot be reduced to such simple and readily standardized work load units as polyclinic visits or house calls, or hospitalized patient care, as is the case for an attending physician; 2) almost all sanitary and epidemiological activities, with minor exceptions, are concentrated in the same type of institution, the sanitary and epidemiological station, for which model staff standards were established by order No. 819-m, 15 September 1951, of the USSR Ministry of Health. Subsequently, model staff standards were also established, in order No. 33-m, 4 March 1957, by the USSR Ministry of Health, with reference to sanitary and epidemiological departments of rural rayon hospitals in accordance with their category. However, it is very difficult to make use of these model standards to obtain consolidated indices since, in the first place, the sanitary and epidemiological service is distributed among three main levels--rayon, municipal, oblast and republic-level sanitary and epidemiological stations. Each of these types is referable to different categories with regard to capability; however, the category of sanitary and epidemiological stations is not related to any stable and readily-determined criterion, and it is formed largely by chance. With reference to sanitary and epidemiological stations varying in importance and category, units are added to the main established staff, depending on the number and size of industrial and other objects serviced, the morbidity level, and the availability of structural entities, etc., at the sanitary and epidemiological stations. In addition, the staff established for sanitary and epidemiological stations 15 years ago requires considerable revision.

Usually, when planning the number of physician posts referable to sanitary and epidemiological services to the public, one does not proceed from the model staff; rather, one uses estimated standards on the basis of empirically formed norms referable to administrative territories with good sanitary and epidemiological conditions: 1 epidemiologist post per 25,000 overall population; 1 health inspector [physician] dealing with housing and municipal hygiene per 40,000 urban population; 1 industrial health inspector per 14,000 blue and white collar workers; 1 health inspector [physician] dealing with food sanitation per 30,000 urban population; 1 physician dealing with school sanitation per 25,000 children in urban and rural areas; 1 bacteriologist per 35,000 urban and rural population (3).

The above-described method of determining physician demand on the basis of consolidated indices, proceeding from the established staff standards, is suitable for planning physician posts only for the next planning period.

Yet, taking into consideration the fact that medical VUZ education requires 6 years and that graduating physicians undergo subsequent specialization, when planning enrollment in medical institutes one must also bear in mind the future need for physicians--and, particularly, specialists--over a longer period of time, approximately 15-20 years. One should take into consideration a number of factors that determine this demand, the most important of which are the changes in age structure of the population, changes in level and structure of morbidity, development of medical specialization, higher cultural standards of the people, development of medical technology, changes in structure of the public health network, improved organization of medical personnel labor, the change to complete coverage of the population with dispensary supervision, etc. On the basis of evaluating and generalizing scientific research pursued in recent years (and his own investigations), G. A. Popov, in his doctoral dissertation entitled "Methodology of Setting Standards of Specialist Demand," set the standards of specialist demand and structure as the mean for the USSR in 1980.

He used his proposed method of determining equivalent units of medical services to the public, which makes it possible to determine the required proportions between the different forms of therapeutic and prophylactic services, as well as to establish standard and comparable indices of volume of medical care rendered to the public--with due consideration of the age and sex structure of the population of different republics, oblasts and cities.

This method is described in its general features in the author's abstract of his dissertation.

The standards of specialist demand suggested by G. A. Popov are submitted in Table 28. These standards for the urban population are given in two variants: variant A is based on the urban medical standards obtained as a result of a study conducted at the Institute imeni F. F. Erisman; variant B is based on the standards that were developed by the department of public health planning of the USSR Ministry of Health (the two standards are submitted in this book, in Tables 19 and 20).

The physician demand for medical schools, scientific research institutes and the public health system constitutes two physician posts per 10,000 overall population, and this must be added to the standard given in Table 28.

Preparing the Balance of Physicians

After determination is made of the physician demand/referable to all areas of medical services, one must prepare a balance of physicians. This consists of comparing the demand, expressed as a number of physician

Table 28

STANDARDS OF SPECIALIST PHYSICIAN DEMAND AND STRUCTURE WITH REFERENCE
TO THERAPEUTIC-PROPHYLACTIC AND SANITARY-EPIDEMIOLOGICAL SERVICES,
USSR MEAN FOR 1980 (PER 10,000 POPULATION)

Specialty or area of medical care	Urban		Rural	Overall	
	Variant A	Variant B	Variant B	Variant A (B is used for rural population)	Variant B
General medicine	8.15	6.82	4.18	6.96	6.03
Surgery	2.90	2.54	1.77	2.56	2.31
Obstetrics & gynecology	3.19	2.33	1.76	2.76	2.16
Neurology	1.84	1.02	0.75	1.51	0.94
Pediatrics	3.23	3.49	2.33	2.96	3.14
Infectious disease	0.71	0.40	0.37	0.61	0.39
Phthisiology	0.80	1.09	0.73	0.78	0.98
Ophthalmology	1.43	0.66	0.50	1.15	0.61
Otorhinolaryngology	0.86	0.57	0.44	0.73	0.53
Dermatovenereology	0.66	0.59	0.44	0.59	0.54
Logopedics	0.36	--	--	0.25	--
Psychiatry	1.01	1.26	1.07	1.03	1.20
Laboratory work	1.09	1.09	0.29	0.85	0.85
Roentgenology	1.33	1.33	0.53	1.09	1.09
Physiotherapy	0.45	0.45	0.06	0.33	0.33
Pathology service	0.26	0.26	0.12	0.22	0.22
Medical statistics	0.18	0.18	--	0.13	0.13
Forensic medical expertise	0.12	0.12	0.12	0.12	0.12
Stomatology	8.51	5.74	3.50	7.01	5.07
Physicians in sanitary and epidemiological group	2.15	2.15	1.65	2.00	2.00
Others (administration, emergency service, blood transfusions, therapeutic physical culture, medical control)	<u>2.91</u>	<u>2.91</u>	<u>1.05</u>	<u>2.35</u>	<u>2.35</u>
Totals	42.14	35.0	21.66	35.99	30.99
In addition:					
School physicians	0.56	0.56	0.72	0.61	0.61
Creche physicians	0.62	0.62	0.46	0.57	0.57
Nursery school physicians	<u>0.52</u>	<u>0.52</u>	<u>0.30</u>	<u>0.46</u>	<u>0.46</u>
Totals	43.84	36.7	23.14	37.63	32.63

posts stipulated in the plan for the end of the planning period, to the expected number of physicians. If we are dealing with an annual plan or 5-year period, the overall number of physicians is already predetermined by the number of students attending medical VUZ. The plans for enrollment in medical VUZ may influence the change in the number of physicians beyond the 6-year projected period for those who will be graduating from medical, pediatric and sanitary-hygienic faculties, and a 5-year period for those who will graduate from stomatological faculties. This creates some difficulty with respect to substantiation of enrollment plans, since they should proceed from the projected physician demand referable to the next period that is not yet reflected in the national economic plan or in the public health development plan.

The expected number of physicians as of the end of the planning period is determined with consideration of the following data: 1) number of physicians at the beginning of the current year (according to the statistical records); 2) expected number of physicians at the end of the current year (start of the planning period); 3) expected addition of physicians referable to medical institute graduates and other sources; and 4) expected loss of physicians due to death or retirement, as well as other reasons.

When estimating the expected number of physicians within the boundaries of a republic or oblast, one must take into consideration the movement of physicians, i.e., arrival of physicians from other republics or oblasts, or departure to other republics or oblasts, as well as movement within the republic or oblast, for example between cities and rural areas, between capital cities and rayon centers, etc. We know that there is a large turnover of physicians in rural areas and some rayons. One of the most important reasons for this turnover, which is seriously detrimental to public health, is the unsatisfactory working and living conditions in such areas. A decree issued by the CC CPSU and USSR Council of Ministers on 14 January 1960 compelled local Party and Soviet organizations to take steps to significantly improve working and living conditions for medical personnel, particularly in rural areas, as well as to promptly provide them with housing.

Much analytical work and thorough knowledge of the specific situation are required to determine the expected number of physicians. The expected addition of physicians, referable to medical VUZ graduates, is established on the basis of the annually approved plans for placement of young specialists. Loss of physicians is determined with consideration of the age and sex structure of the physician personnel and the existing practice in recent years of the retirement of physicians when they reach retirement age. The extent of movement of physicians is assessed on the basis of the experience of the last few years, taking into consideration the effectiveness of measures directed toward overcoming physician turnover such as, for example, increasing the share of physicians graduated from local VUZ among the young specialists, improving living conditions for physicians in rural areas, developing specialized therapeutic institutions and providing better equipment thereof, etc. When evaluating physician turnover, one should bear in mind that its extent is determined by turnover referable to young

physicians who have graduated in recent years. For this reason, the increase in graduates from local medical VUZ, as well as the increase in the share of physicians with tenure (who have worked for a long time in a given locality), will diminish the turnover of physicians.

We should warn against overestimating, in the plan, the projected availability of physicians in order to obtain as many physician posts as possible. This would result in disproportions, difficulties in manning the network of medical institutions, incomplete manning of established posts, and an increase in physicians holding more than one job.

The comparison of number of planned physician posts to the expected number of physicians is made for the entire territory of the republic, oblast or city, and not according to types of institutions. One must also take into consideration the physician posts that are occupied at medical schools, at scientific research institutes and in the system of public health bodies. To adhere to the balance of physician posts in the plan, very limited use should be made of provisions for holding more than one job. In view of the necessity of gradual reduction of the practice of physicians holding more than one job, one should proceed from the premise that the increment of physician posts should not exceed the increment of physicians; rather, it should usually be smaller than the latter.

In addition to the overall balance of physicians, one should also prepare a balance of personnel for cities and rural areas (with consideration of personnel movement), as well as with reference to the main sectors of public health that are related to the existence of the corresponding faculties (general medicine, pediatrics, sanitation, stomatology). It may be found that with a generally good balance, there are no provisions for increasing the number of physician posts in different areas or in different branches of medicine--for example pediatrics or stomatology.

If the expected availability of physicians is not sufficient to fill the planned number of physician posts--even with the permissible level of holding more than one job--and if it is not deemed feasible to increase the number of physicians by adding to the network young specialists who have graduated from VUZ, one must go back to the plan and reduce its projection of physician posts. This work can be performed in three directions: a) an additional search for reserve established posts in the existing network of medical institutions by means of eliminating duplication, rationalizing the structure of therapeutic and prophylactic institutions, enlarging departments, and providing the physician with a complete work load; b) retaining, to a feasible extent, even in the planning period, the rift between the planned number of physician posts and the number of posts that completely meets the established staff standards; and c) cutting down the previously planned rate of expansion of the network and the scope of activities of medical institutions.

In general, it would be wrong for the plan to include the possibility of the incomplete manning of physician posts. However, even

when all physician posts are fully manned, one can, as a result of the usual changes in posts and movement of physicians, as well as of gradual filling of physician posts in new institutions, allow so-called "current" incomplete manning of physician posts within a range not to exceed 3-5% of the total number of established physician posts.

Preparing a balance of physicians is a most important estimation element in the plan, which establishes the consistency between physician posts and physicians. However, physician personnel planning does not end with this. One has to turn to planning measures aimed at the proper placement of physicians, the backing up the leading sectors of public health with personnel, and overcoming the lag in some sectors, in addition to increasing the qualifications of physicians and the training of specialists.

In this regard, we must note, first of all, two main tasks in the area of planning: 1) preparation and fulfillment of the plan dealing with distribution of young physicians who have graduated from VUZ and who are becoming available to the public health bodies of a given republic or oblast. On the basis of analysis of availability of physicians in different regions and the main trends in the development of public health, there is established a roster of specific posts that are to be filled by young physicians immediately after graduating from a VUZ or after undergoing specialization. These may be posts in new medical institutions, as well as posts subject to replacement in the existing network; 2) preparation of the plan for advancement, the advanced training and specialization of physicians, which they undergo at institutes and faculties for the advanced training of physicians, as well as at so-called local bases.

We must agree with M. D. Kovrigina, head of the Central "Order of Lenin" Institute for Advanced Training of Physicians, that the specialization of physicians working not only in rural, but also in urban institutions--particularly in such fields as general medicine, surgery, obstetrics and gynecology, phthisiology, etc., involving long training periods (5-8 months)--should be pursued primarily in republic-level, kray, oblast and major, well-organized municipal therapeutic-prophylactic and sanitary-epidemiological institutions (4).

This form of specialization of physicians should be continuously expanded and perfected, especially since physicians who are undergoing advanced training and specialization (with leave from their work) at major public health institutions are able to take advantage of material aid, in accordance with the established procedure for physicians who are raising their qualifications at institutes for advanced training of physicians, as declared in a decree issued by the USSR Council of Ministers (1963) (4), "concerning the system of advancing the qualifications of physicians."

The plans dealing with the advanced training and specialization of physicians are prepared in the different republics and oblasts by the planning departments, in collaboration with the departments of personnel and chief specialists.

In their routine work dealing with placement and utilization of physicians, public health bodies are governed by the tasks that are put to them in the public health development plan. At the next stage, the most important tasks are to man with physicians the therapeutic and pediatric medical districts in cities and rural district hospitals, to provide specialists to rural rayon hospitals, to provide staff for institutions for tuberculosis patients and psychiatric, therapeutic and prophylactic institutions, to improve the medical care of industrial workers, and to strengthen the sanitary and epidemic-control service. These general tasks may be altered or amended in different republics and oblasts, according to local conditions.

Planning Referable to Paramedical Personnel

Paramedical personnel planning is performed using essentially the same method as physician planning. Table 29 submits the estimated standards developed by G. A. Popov to determine the overall demand for paramedical personnel.

Quite often, when evaluating the availability to the public of paramedical personnel, one uses additionally an index such as number of paramedical personnel per physician. In 1965, the mean was 3.3 paramedical personnel per physician, with 2.8 in urban areas and 8.6 in rural areas.

The fluctuations of this index in different Union republics are related to a number of reasons:

1. The proportion between urban and rural population. As we see, the number of paramedical personnel per physician is considerably higher in rural areas than in cities.
2. The proportion between ambulatory polyclinic and hospital services in cities. For example, with reference to ambulatory polyclinic care, there are 1.4 paramedical posts per physician and for hospital care--4.2 posts.
3. Development of the network of medical institutions headed by paramedical personnel (feldsher and feldsher-midwife centers, kolkhoz maternity homes, feldsher health centers).
4. Development of the network of creches, creche-nursery schools, nursery schools. Such institutions employ predominantly paramedical personnel.

The differences in proportion between physician and paramedical posts, due to differences in structure of the network of medical institutions, are quite logical. For this reason, one can compare these indices only with reference to institutions of the same type.

On the whole, for the Soviet Union, the correlation between these has remained approximately at the same level for a number of years. Thus, it constituted 3 paramedical personnel per physician in 1940, 2.7 in 1950, 3.2 in 1960, and 3.3 in 1965.

Table 29

ESTIMATED NORMS TO DETERMINE OVERALL PARAMEDICAL PERSONNEL DEMAND*

Areas of medical care	Number of posts per	Total	I					U					D					I					N					G					Plus broadly qualified personnel
			Feldshers	Nurses	Midwives	Feldshers	Lab techn.	Health serv.	Dental tech	X-ray technicians			Feldshers	Lab techn.	Health serv.	Dental tech	X-ray technicians																
Ambulatory polyclinic care of urban population	10,000 urban population	32.97	7.3	2.5	19.2	1.36	0.51	1.5	0.6																								
Hospital care of urban population	100 beds	38.04		4.55	30.75	1.58	--	--																									
Therapeutic & prophylactic care of rural population	10,000 rural population	74.86	15.35	12.65	39.29	3.04	1.1	1.5	1.93	1.1																							
Neuropsychiatric and psychiatric hospitals	100 beds	18.2	--	--	16.92	1.0	--	--																									
Child centers	100 places	40.0	--	--	40.0	--	--	--																									
Sanitary and epidemic-logical services	10,000 over-all popul.	4.22	--	--	0.38	0.46	3.38	--																									
Sanatoriums	100 beds	15.37	--	--	13.93	0.77	--	--																									
Rest homes	100 spaces	0.7	--	--	0.7	--	--	--																									
Forensic medical expertise	1,000 overall population	0.07	--	--	--	0.07	--	--																									
Scientific research institutes, personnel training facilities, administration	10,000 over-all population	0.5	--	--	0.5	--	--	--																									

*Methodological letter of the USSR Ministry of Health dated 20 July 1962: "Improved Planning of Paramedical Personnel Training," prepared by G. A. Popov, chief specialist of the planning and finance department of the USSR Ministry of Health.

The training of higher levels of medical personnel is planned on the overall Union and republic scale. There are no medical VUZ in many oblasts. For this reason, when preparing the balance of personnel, one takes into consideration only the expected addition of physicians referable to graduates. When preparing the balance of paramedical personnel, one should proceed from the fact that each republic and oblast must fully meet its own demand through its own graduates. The shorter training period makes it possible to include in the balance, in part, training of paramedical personnel when preparing 5-year plans. At the present time, some of the paramedical posts are occupied by individuals who have not completed secondary medical education, but who have undergone various forms of short-term training. In 1964, such individuals constituted 18.4% of all paramedical personnel. Some of these workers do not necessarily have to complete their secondary medical education because of their specialty; for example, those involved in disinfection, quinine treatment and bonification. All these circumstances must be taken into consideration when establishing the balance of paramedical personnel.

FOOTNOTES REFERRED TO IN CHAPTER 9

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